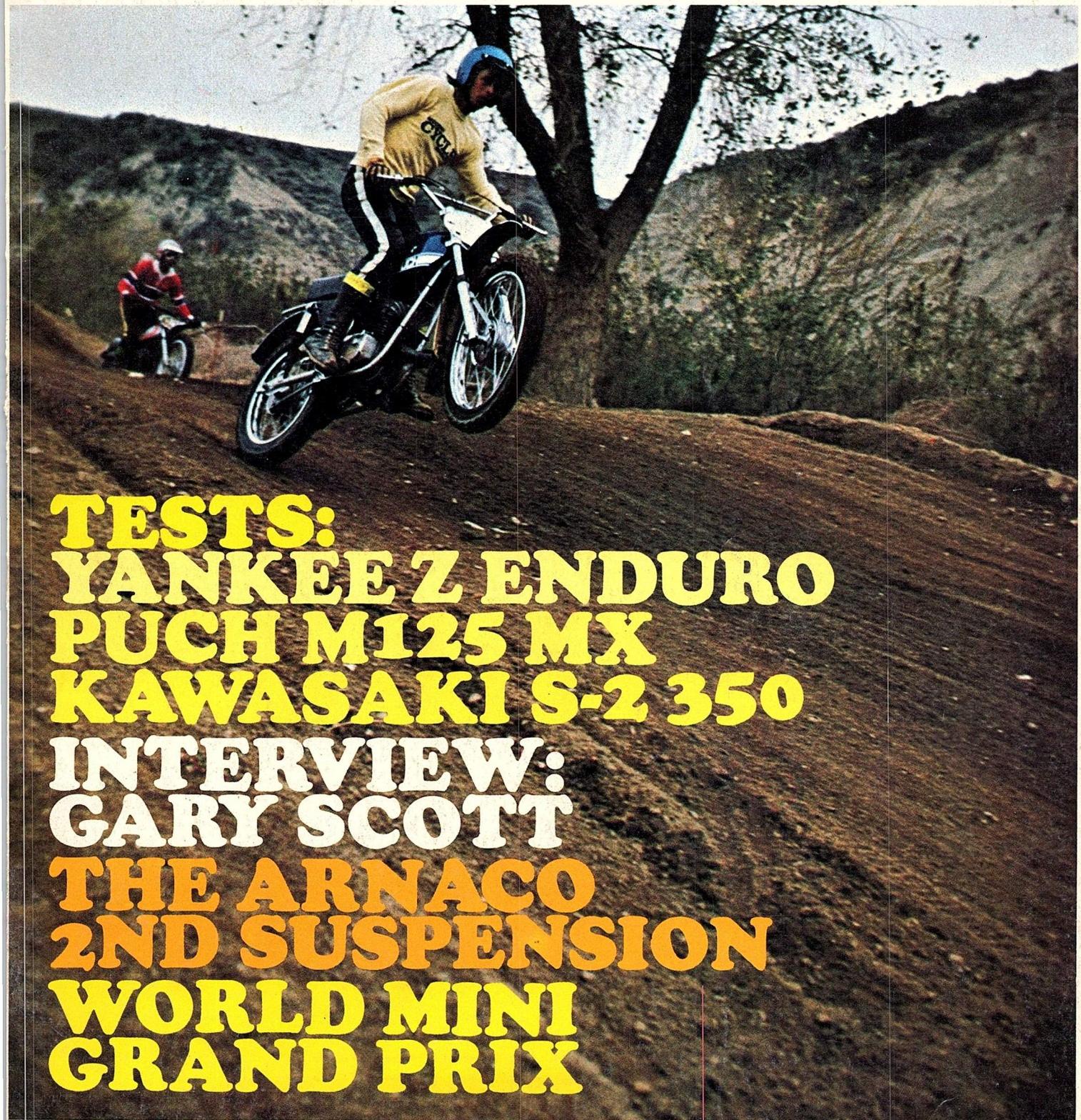


MODERN CYCLE

APRIL, 1973 75¢ PDC

CHALLENGE PUBLISHING INC.



TESTS:
YANKEE Z ENDURO
PUCH M125 MX
KAWASAKI S-2 350
INTERVIEW:
GARY SCOTT
THE ARNACO
2ND SUSPENSION
WORLD MINI
GRAND PRIX



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MINI 80**

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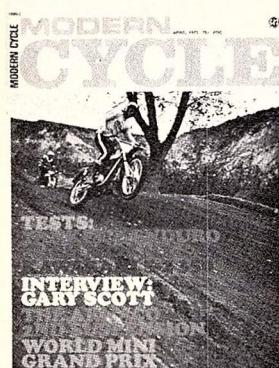
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APRIL, 1973

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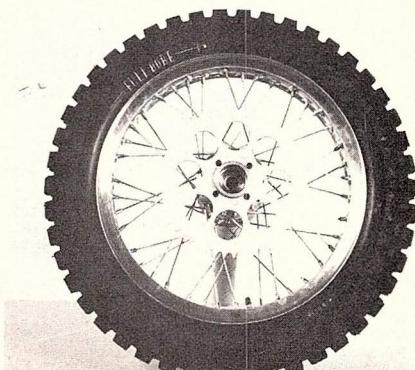
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LIGHTWEIGHT AND TOUGH .. Page 34

Recently, while leafing through a copy of a magazine produced by one of this country's greatest museums, I came across an advertisement that really got my back up. The ad, placed by the National Audubon Society, is a classic example of a "cheap-shot" effort designed to arouse members of a segment of the vocal minority usually referred to as "little old ladies in tennis shoes."

The headline on the ad reads, "Save The World From Fun and Profit." Beneath the headline are two paragraphs; on the left a picture of the start of a desert race, on the right a shot of a factory complex belching smoke into the atmosphere. Under these two pictures is a second line that reads, "A minority of the world's sportsmen and businessmen are still causing a majority of the world's environmental ills." You've got to admit that this is a pretty grabby way of getting the attention of the lunatic fringe environmentalist; the sort of person who feels that it would be better if we didn't walk on the surface of the earth (after all, all that friction is probably wearing the old globe away).

After most of the damage has been done you read the first line in the body of the ad and find that, "Audubon is not against fun and profit. Just the fun and profit of the few people who do the most damage to people, plants, mammals, birds, fish

and everything else that lives, flows, grows, and breathes on this planet."

Ninety-nine percent of the motorcyclists I know (Hell, ninety-nine percent of the **people** I know) are concerned about ecological destruction. Fortunately, most of these people are intelligent enough to realize that man cannot exist on this planet without some destruction taking place. Most people are not by nature destructive however, for mankind to live we must take something from the earth. And that something must include space for recreation, for if man does not play occasionally, he becomes ill. In a very real sense the world must be used for both fun and profit, but it must certainly be used intelligently.

What's particularly galling about the Audubon ad is that it is misleading, hysterical and, most distressing, probably effective.

a
blast
from
the
publisher!

The National Audubon Society has taken a "cheap shot," much of which is aimed at the sport of motorcycling. Make no mistake, the ad is impressive and it will motivate the people it was aimed at. The text of the ad states, ". . . the Society has become one of the most respected as well as effective environmental groups in the world." That's a polite way of bragging about their muscle.

If the sport of motorcycling is to continue to enjoy the degree of freedom it now possesses we must begin to develop our "muscle." Here, in the West the Bureau of Land Management is making life extremely difficult, the Sierra Club has been after motorcyclists for some time, and now we have the Audubon club using riders and bikes as an example of all that is bad in the pollution struggle. The BLM, the Sierra Club and the Audubon Society are heavy organizations to have against you. Both the Club and the Society are peopled with members who get things done; they write letters and make their feelings known. If we are to survive we must make use of the same tactics.

Across the country, small groups of riders are forming organizations to fight adverse legislation and public opinion. If you're not already a member of such a group, you should be. The pen is indeed mightier than the sword! Letters, directed to the proper legislators, are a classic example of the truth of this statement. The strength of the Sierra Club and the Audubon Society comes not from vast memberships, but from a small membership that makes its wishes known. The same tools are available to us, it's just a matter of getting off our duffs and starting to use them!

(In closing I'd like to indulge in a "cheap shot": if the Audubon Society wants to save the world from fun and profit, who do they want to save it for? . . . The birds?) •

THE NEW SHERPA T 350

Bultaco has always set the trend in the trials world so when we say it's time to make a change...you'd better believe it! When we first made a 250 two-stroker, for example, the "experts" laughed and told us that a trials bike just HAD to be a four-stroke "thumper". How many of those thumpers do you see these days? Now we're getting back to the thumper-type power, however, with our latest Sherpa 'T' 350. But we're combining that sort of power with the light weight and precise steering of our famed 250. That's why we say it's time to change from the two-fifties. Because our new 350 does anything that the two-fifties can...and does it a whole lot better!



BULTACO

Silverado, California

The British 1972 Trials Championship gave the number one position to the favorite Malcolm Rathmell on his Bultaco (the 250cc version being his choice) with brothers Martin and Alan Lampkin second and third on similar machinery. The next Championship — the European — commences in January, 1973 and reigning Champion Mick Andrews (Ossa) may well change saddles with the lucrative offer from Yamaha dangled before him.

To those closely connected with sporting trials and the various makes of machines employed, it came as no surprise to read that the Greeves 175cc 6-speed Pathfinder has been discontinued by the factory. Never a best seller, even in the hands of top works riders, it has never prevailed against the opposition. The 175cc capacity matched against the more popular 250s and 325s was not its main limitation as the small displacement Cotton and later 125 Montesa Cotas are very competitive against the bigger stuff. No, truth is that the 175cc Puch power plant was more suitable for speed work and enduros. Had the Pathfinder been launched from the word go as an out-and-out trails (NOT trials) cum enduro bike with its complimentary extra silencing, seating and lighting equipment it may well have taken on. The later attempt to do this in reverse—converting a trials iron into an enduro model—was just not accepted. Another factor which the buyer soon became aware of was the high price of spares which in many instances were 2½ times higher in price than for similar spares in the Greeves 250 and 380 motocross Griffon and QUB range. These models are being continued with new styling and a welcome reversion to the use of Ceriani front forks, without doubt, the best on the market. Also the 1973 Greeves

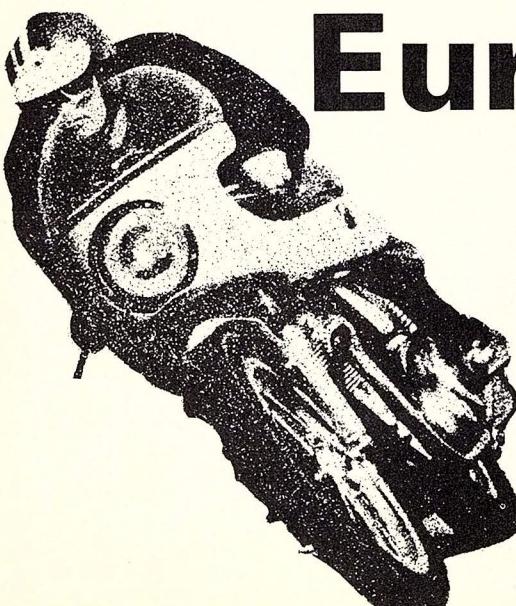
now available sport a new polished alloy gas tank which is available to the owners of the pre-'73 models.

The Isle of Man TT races, about which there was so much controversy on the dangers in this 37-mile per lap road circuit, has been given the go-ahead for 1973 and the prize money for the Senior event has been upped to a near \$2,500. One rider who will not be riding in the TT is Agostini who was one of the leaders in the appeals to get the course banned for International racing. And although new M.V.-signed Phil Read is also noted as a TT non-runner this statement does not carry the weight of Agostini's. So the question remains, can M.V. afford NOT to be in the TT knowing that rival Italian factories will be entering . . . ?

The British "MotorCycle News" runs an annual reader voting Machine of the Year contest. Before giving the positions it must be firmly stated that non-British machines are every bit as popular in the U.K. as in the U.S. (or elsewhere) with Honda alone holding 50% of the British market. So it is an amazing vote result (which for the FIFTH consecutive year) the Norton Commando comes out as Number ONE with the next 9 placings as: 2nd, 750 Triumph Trident; 3rd, Honda CB500; 4th, Honda CB750; 5th, Suzuki GT 750; 6th, 750 BMW R75/5; 7th, 750 BSA Rocket 3; 8th, 650 Triumph Bonneville; 9th, 750 Kawasaki H-2; and 10th, 500 Kawasaki H-1B. Obvious is the fact that nothing under 500-cc has a placing in the first 10—and no motocross or competition bikes figure.

Suzuki has signed up Joel Robert, Roger DeCoster and Sylvain Geboers for another season and added to its team is Gaston Rahier, a 24-year-old Belgian.

The Russians will contest the 1973



European Scene

World Motocross Championships on the new 6-speed KTM's after many years use of the CZ. The change follows the lack of top class CZ factory equipment for the Russians in 1972; a complaint which was seemingly the cause of British rider and ex-BSA works Number One John Banks' lack of success. If Banks goes "private" it would not be a bad guess to see him on the BSA-powered 500cc "Clewstroka"—a new name gaining a big reputation amongst the many who yearn for the big four-strokes of the past. Alan Clews, the boss of

(Text continued on page 76)

1973 CZ. New, for all the right reasons.



The 250 CZ is made for one purpose. To go faster and easier over rough terrain than any other bike. And to do it weekend after weekend, year-in and year-out.

At CZ, we don't make changes just to say we have a new model.

So for 1973, we have made refinements that will help you go even quicker. 5 speed gear box, new, improved carburetor that increases performance even in the intermediate r.p.m. range. A "sunburst" head for increased cooling. New Grand Prix tank and styling. And an engine that puts out enough "out-of-the-crate" horsepower to win every moto.

A frame that is virtually unbreakable. Designed to get around corners quick, but great stability when you're hooking it in the rough.

Waterproofing and dustproofing keeps the CZ engine running strong and ignition dry. And the dual-coil ignition that fires both plugs simultaneously so you won't be left stranded. Precision parts; chains, sprockets, gears that seem to last forever. Welded levers, Barum tires and a new light and flexible fiberglass front fender.

At CZ, we build for speed, strength, handling and durability; for motocross, cross-country and desert . . . we'll let our 32 world's titles speak for themselves.

CZ is built for the rider. That's why it's not only a better dirt bike, it's a better CZ. So much better that when you ride one, you'll see why our changes are all for the right reasons.

Check one out at your nearest CZ dealer today.

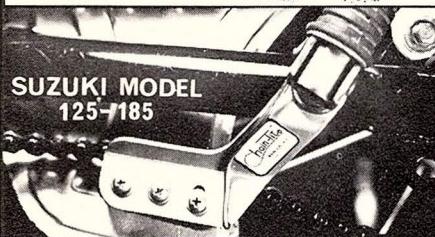


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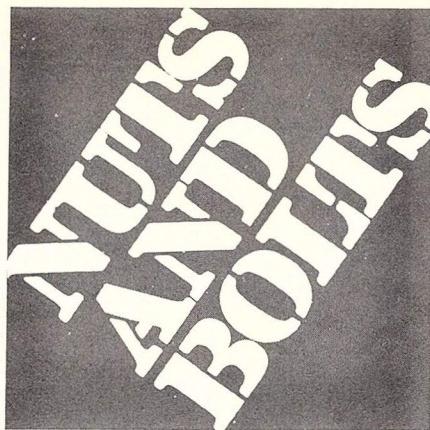
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Dear Dave:

In your December, 1972 issue you had a letter from a Tim McNamara of Verona, New Jersey describing the typical Yamaha RT-2 "ring-ding." There is a solution for this problem which is found on page 62 of the same issue titled "Yamaha DT-2 Hop-Up."

The arrangement suggested by International M/C for the DT-2 works for the RT-2 also. I had accomplished this modification almost a month before the December issue was out which could be marked up to a coincidence except that I had based my modifications on the CT-2 hop-up described in the August, 1972 issue.

My modification varied slightly. With a high speed carbide cutter I carved the transfer port divider down to a knife edge. The exhaust, induction and transfer ports were modified almost exactly as described in the DT-2 write up. The piston skirt was cut back on the induction side but only in the area matching the intake port. Full length skirt was left on each side to reduce piston slapping.

A different touch which I have used for several years is to hand cut with a $\frac{1}{8}$ " ball cutter approximately 300 spherical depressions into the side of the piston. The piston is wet sanded with #300 wet paper and lacquer thinner after.

All ports were highly polished with cratex on a special holder.

Whereas the compression ratio was reduced due to port modifications the recovery was accomplished with the application of a MX head. Computed ratio was raised from 6.4:1 to slightly over 7.5:1. One edge of the head had to be band sawed to provide exhaust pipe clearance. A 250 jet and a Champion N2G plug completed the picture.

The end result? With a stock pipe and gearing the machine is really sensational. Even after several hundred miles the performance is still unexpected. The power band starts right from the basement with very little front tire wear through the first two gears. Now this extra horsepower is certainly appreciated but the

bonus factors make this machine a dream to ride under any condition. It pulls even and smooth at all times. The tendency to "four cycle" under low load conditions has stopped. The secondary "pop" when coasting down with the throttle off no longer takes place.

For all the rest of the RT-2 owners the machine is every bit as smooth as the DT-1 or the DT-2. So take heart, that 360 is really a sleeping tiger. It just takes a little work and understanding.

Don Turner
Santa Ana, Calif.

Dear Mr. Ekins:

In regard to Tim McNamara's problem with his RT-2 in your December, 1972 issue. I have an RT-1 that acted much like Mr. McNamara's. My problem turned out to be in the carb.

At partial throttle (from $\frac{1}{3}$ to $\frac{3}{4}$) it was running slightly rich and wouldn't run evenly unless under load. I don't know exactly why it acts this way, maybe you do. It seems to be four-cycling but only when the bike is, more or less, freewheeling on level ground or slightly down hill.

I've seen and ridden other 360 Yamahas that act the same way but it's easily fixed. Just move the clip in the main jet needle up one notch. This lets the needle down into the carb giving a leaner mixture at mid-throttle. Most 360s come with the clip in the second (from the top) notch, just move it up to the top notch (notch closest to end of needle). It has very little, if any, effect on wide-open throttle but a spark plug reading should be taken.

A big one-lunger is never going to run as smooth as a Honda Four, but moving the needle down (clip up) sure made a difference in mine and has run that way for the last 3 years.

I hope this will help Mr. McNamara.
Robert Falter
Cedar Rapids, Iowa

Dear Sirs:

The caption "Nobody Has Done It Right . . . Yet," which headed the article "An Understanding of the Rotary Engine" in your December, 1972 issue, still applies. The article began impressively with an indication of "an understanding" of the engine. Most articles tend to indicate that the rotor indexing gear transmits power from the rotor to the output shaft of the engine. Yours is the first article I've seen, in a non-technical magazine, that clearly stated that this gear is affixed to the rotor housing for the purpose of insuring that the rotor apexes follow the epitrochoidal path. An auspicious example of "an understanding." However, close upon the (Text continued on page 73)

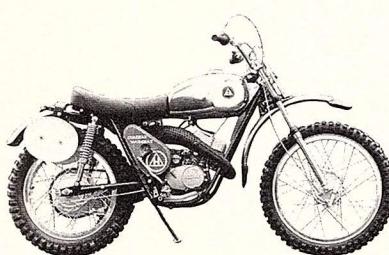
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The new COMBAT Wombat is to the Wombat 125, what the Super Rat is to the Hodaka 100 B+. It's the supreme motocross machine, and comes race-ready from the crate. The 125cc 2-stroke engine has an exclusive patented Alumiferric Fusion cylinder with extra wide fins for increased heat dissipation. The new Victory Port design gives superior fuel direction into the combustion chamber for better burning.

Enduro riders choose the original Wombat for its features and competition-proven Hodaka design. With its longer, stronger frame and 52.5 inch wheelbase, the Wombat has a pleasing edge over its competition in ease of handling at high speeds. The seat is a low 30.75 in. from ground level and an unobstructed 9.5 in. clearance. The center of gravity is kept low for good balance because of a low crankshaft height.

For the motocrossers wanting the ultimate 100cc weapon, the Super Rat has proven its superiority across the deserts and dirt of the continent. The Rat is pure potent function enclosed in the much-copied Hodaka framework. The 'square' 2-stroke achieves maximum torque at 6,600 RPM and boasts an extra big, washable micronic foam air cleaner that lets you tear through the finest dust with confidence. It's MX ready right off your Hodaka dealer's floor.

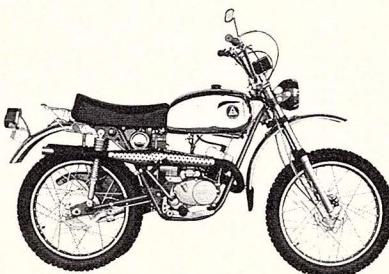
The country's truly versatile motorcycle . . . regardless of class, has to be our classic Hodaka B+. The pattern for the copy-cats. Beginner and expert alike, have in the B+ the improved descendant of the first real trail bike. With fully approved lighting and muffler systems, it's ready for any kind of fun and gives you the dependable, long lasting durability common to all four Hodakas. For the address of your nearest Hodaka dealer, Canadian readers should write to Gemini Ind., Ltd., 2525 Stephens Street, Vancouver, B.C. Australian inquiries can be sent to Minilya Pty., Ltd., P.O. Box 209, S. Melbourne, Australia 3205.



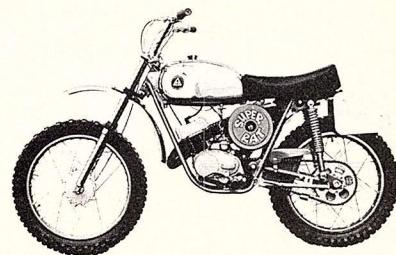
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MATT

Dear Sirs,

I am going to buy either a Norton Commando or a Triumph Triple this spring, but I need some help from you in deciding which it will be.

I just finished reading your road test on the Norton and, like numerous other tests I've read on that bike, it spoke very highly of it. One thing in particular I was curious about though, and also the one thing that none of the reviews that I've read have covered, is just how long the resilient rubber mounts last. If they crack and break off in six months or so, that could be a real nuisance and I'd probably go Triumph, but if they are as durable as an anvil, then I'll probably go for the Norton.

It's little things like this that make the difference between a great bike and a good bike. I realize that more time is needed for you to make a truly competent judgment of an item such as this, but nevertheless, any inkling you can give me will be appreciated.

Barry Fiegel
Yukon, Oklahoma

In most cases the rubber material used in the Norton Isolastic system lasts for the life of the bike. If the units are disassembled, and oil is allowed to penetrate to the innards, deterioration will take place. I don't think that you really have to worry about it.—Ed.

Dear Sir:

I own a '69 BSA 750-Three, and I plan on rebuilding the engine soon. Could you please help me obtain info on purchasing some downswept TT pipes or headers for my machine. Also, a 850cc bolt on kit.

I have found zero information in these two areas and will appreciate your help.

Brad Loucks,
Grand Rapids, Michigan

Information on the TT pipes or headers can be obtained by writing to: Trackmaster Racing Frames, 18548 Parthenia Avenue, Northridge, California. I believe that the big bore kit is handled by KK Supply, Incorporated, 431 East Third St., Dayton, Ohio 45402.—Ed.

Dear Cycle Fans,

I would like to obtain information on a Bridgestone 175 Scrambler. Would you kindly send information to me, and tell me how you rate this cycle.

Myron Thompson
Huxley, Iowa

We don't have the dope you need, but you can get it by writing to: Rockford Motors, 1911 Harrison Avenue, Rock-
(Text continued on page 20)

TUNE IT IN!

...for the ride you want



Here! The production model 2ND™ Suspension is now at your dealer to meet the demand by riders for better handling, traction and braking. A product of American aerospace technology, it features 7-position *external* damping adjustment, wide range pre-load positioning, absolutely finest materials and precision manufacture, coupled with a one full year service life guarantee! Thoroughly tested in every phase of motorcycling, 2ND™ Suspension has developed to its production state through input from a host of noted riders, including Trans-AMA and World MX Champions. Sidehackers, Trials champs, desert racers have used prototype units, and are now clamoring for finalized models incorporating all that's learned. Watch the pages of *Dirt Bike*, *Cycle*, and other top magazines for stories, tests and comparisons of 2ND™ Suspension with ordinary and other high-performance 'shocks.' Find out how 2ND™ Suspension not only permits precise 'tuning' of damping and spring pre-load, but actually improves control and handling by giving more positive action to the wheel for traction and braking; gets it back to the ground faster in bumpy terrain. The whole big story's in our new, full-color, 10-page brochure. Get it, and the facts!

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EAST TO PROMO

TRAIL



HISTORY WALKING INTO HISTORY

BY ROBERT L. FOSTER



To the east the snow capped mountains jut up into the Utah sky. Author is nearing Promontory Summit.

Listen carefully and maybe you can hear the long, low mournful call as old Jupiter's horn shatters the desert stillness. Perhaps you can see the heavy trail of black smoke rising low out of the funnel shaped smoke stack, wisping back over the moving train and dissipating in the high, clear mountain air as the train clacks toward you down the track.

If you have a vivid imagination and you know the history of this stretch of railroad bed it isn't difficult to imagine, in your mind's eye at least, the miles of shiny track snaking over the rough hewn ties of the Central Purchasing Railroad bed and the colorful trains which moved over them.

The old road bed still stands today, a monument to those hardy Chinese coolies who labored the grade over the high, cold Sierras and through the burning deserts of Nevada and Utah.

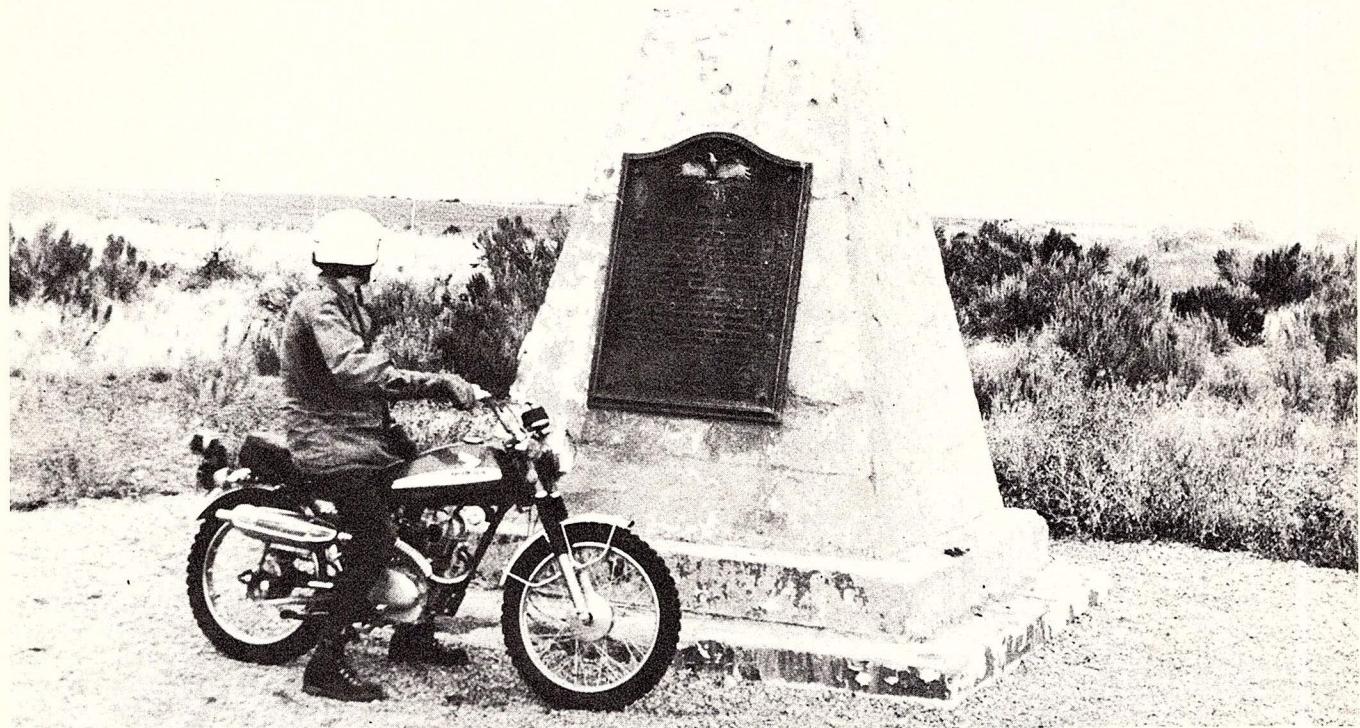
Bouncing over the road bed on my Honda, through the dips, up over the hills, and around the brush which has grown up in the long years since the road was abandoned for a more favorable, shorter route further south across the Great Salt Lake, I could not help but admire the life and death struggle of the men who built a railroad with picks and shovels.

In most places I could move over the old rail bed faster than had the loaded trains of the Central Pacific, especially up the grades. Third gear pulled me along without luging the engine. Sometimes it was necessary to kick down to second to get around brush or places where the fill has caved in or eroded away.

The road bed is in very good condition — nearly as good as a paved highway in many places. Old railroad ties lie decaying at the bottom of the rising fill. In some of the deep depressions where long wooden trestles used to stand, it takes some effort to cross by trail bike. I noticed many rusting iron spikes, plates, and other evidences of railroad activity near the road bed.

Looking south I could see the white, shimmering salt and the deep, blue water of the Great Salt Lake. It is quiet in the desert and only the bike's engine breaks the vast stillness. The desert stretches ahead as far as you can see in gray sagebrush splendor. The high, snow topped peaks of the Wasatch range many miles east jut 10,000 feet up into the blue Utah sky.

It's a long ways between towns in that nearly uninhabited region. As you look at a map of this remote, forgotten land you will see that the northwest corner of Utah is part of the Great Salt Lake desert, swelter-



ing by day and freezing at night. By most people's standards it is a God forsaken piece of real estate inhabited only by rattlesnakes, kangaroo rats, coyotes, and jackrabbits.

It is a motorcyclist's paradise if you like the challenge of the open country, rough terrain, and the feeling of freedom that comes from leaving civilization behind. Beauty is in the eye of the beholder; and the desert offers something starkly beautiful, with a hint of mystery and danger as your bike kicks up a trail of dust in pursuit of adventure.

In many places the road bed crosses private property owned by local ranchers. They have no objection to people using the road as long as they do not chase or spook the cattle or destroy or deface their property. A thoughtless cyclist could cause closure and fencing of the old road bed.

Being in the middle of this expanse of rocks and brush and low juniper covered hills was the culmination of several months of thinking and planning of tracing the rail bed of the Central Pacific Railroad.

I had attended the centennial cele-

- The author arrives at Promontory after a 75 mile ride through some of America's most remote country. Monument marks the spot where the Central Pacific and Union Pacific met on May 10, 1869.

bration of the reenactment of the driving of the golden spike on May 10, 1969 at the Golden Spike National Monument at Promontory, Utah. It was then I decided to explore part of the original route of the Central Pacific Railroad from Lucin, near the Utah-Nevada border, east to Promontory. From Lucin to Promontory, it is about 75 miles.

The main east-west trackage of the modern Southern Pacific Railroad, which took over the Central Pacific, runs through Lucin, and carries tremendous rail tonnage daily between Salt Lake City and the west coast. Looking northeast from the tracks at Lucin you can see the long abandoned rail bed of the Central Pacific snaking through the sagebrush toward Promontory.

It doesn't require elaborate preparations to cross the desert. You must make certain you know the area, carry enough gasoline and water; and let someone know where you are and when you will arrive at your destination. A pair of binoculars and a camera will come in handy.

The cool October air is invigorating in the Utah desert. There is no smog, and the sun reflects off the

- Topping a grade on the Central Pacific Railroad bed and moving through a cut in the mountain. Note the excellent condition of the road bed.

alkalai with white intensity. Near brackish pools salt crystals sparkle, diamond like, against green water.

When I parked my bike at the summit of a small hill to eat my lunch I looked back to the west, toward Lucin and the Nevada border, down the road bed built by human muscle and guts. Nearly 104 years ago on this very spot 6000 Chinese coolies labored frantically to make each foot of fill. They knew the tough, Irish crews of the Union Pacific were just a few miles east.

It had been a long, hard struggle for the Central Pacific construction crew. Many of them had died and lay buried along side the road bed. But each Chinese worker kept pecking away as though he was personally responsible for getting the road built. When he dumped a cart of dirt he didn't walk back for the next load, he ran.

After a lot of politicking in Washington, D.C. during the 1850's and early 60's the transcontinental railroad was finally approved by Congress, and none too soon. It would tie the nation together. In those days there were only three ways to get to California from the east, all dangerous and time consuming. You could go by ship around the tip of South America, some 15,000 miles, taking about six months, if you made it through the hurricanes, typhoons, pirates, and the monstrous seas around Cape Horn. There was the Isthmus of Panama route which required ship and overland travel. It was terribly expensive and malaria or Panama fever took its grim toll of travelers.

If you were extremely brave and hardy you could take the overland route through the Sioux and Cheyenne country. If your wagon or horse made it to California it usually took about four months.

You can imagine the rootin tootin celebration on January 8, 1863, in Sacramento when ground breaking ceremonies started the Central Pacific Railroad crews on construction of the road which would unite California to the Union. A day or two later, when the people sobered up and looked east at the high, foreboding Seirra Nevadas, there were many second thoughts about building an iron road over the mountains.

The roustabout American laborers ran off every time someone mentioned a new gold find, or they would work long enough to draw a month's wages and go on one long drunk.

A year after ground breaking ceremonies Central Pacific had pushed forward 17 miles—and they weren't even close to the mountains! By the middle of 1865, forty-three miles of

track were laid—still not to the mountains! The riff-raff crews were not capable of the task.

Charlie Crocker mentioned to his construction superintendent, J. H. Strobridge, that perhaps Chinese labor should be considered. Strobridge was aghast at the idea—little 4 foot 10 inch, 100 pound yellow men, speaking their infernal gibberish. White men detested them. But since the railroad president had suggested it, the superintendent decided he'd better go along. It wasn't long until Strobridge grudgingly admitted the little yellow men could do the work of four white men. He came to admire their tremendous abilities.

Up over the Sierras the Chinese carved out a road bed at a cost of half a million dolalrs per mile. They drilled 15 tunnels (6000 feet) and built 37 miles of railroad snow sheds. Sometimes avalanches would obliterate hundreds of yards of track in a few seconds—and work would start all over again. The most difficult task was the 1659 foot long tunnel through solid granite near Donners summit. It took two years and many lives.

In May, 1868, the Central Pacific reached Reno—150 miles of road in five years. Not too good! The Union Pacific was moving west across the plains with amazing speed.

The Central Pacific decided they'd better move out if they wanted to collect the government subsidy money for each mile of track laid. They put 6,000 Chinese at tracks end. That was as many men as could work efficiently together. Thirty ships at a time arrived in San Francisco from the east to discharge needed supplies which were rushed by rail to the construction crews pushing east of Reno toward Utah.

There wasn't much Indian trouble. The chiefs were given free passes to ride the big iron horse, and that kept them happy. Since the Chinese were of clean, sober habits there were no camp followers, saloons, gambling houses, etc. that continually plagued the Union Pacific.

As the CPRR and UPRR crews drew closer together across Utah, veering north to get around the Great Salt Lake, competition became keen. The president of the Union Pacific, Mr. Durant, told Mr. Crocker of the Central Pacific, that one of his crews had laid 8½ miles of track in one day; and he bet Crocker \$10,000 his crew couldn't equal it. Crocker had among his Chinese crew eight Irish foremen known as the "Iron-men." He called the press and spectators to rails end to watch his Irishmen set a world record. That day—April 28, 1869, the eight Irishmen laid ten miles of track. There were

3500 rails, weighing 1000 tons—and the men took an hour off for lunch! Their record for track laying stands to this day.

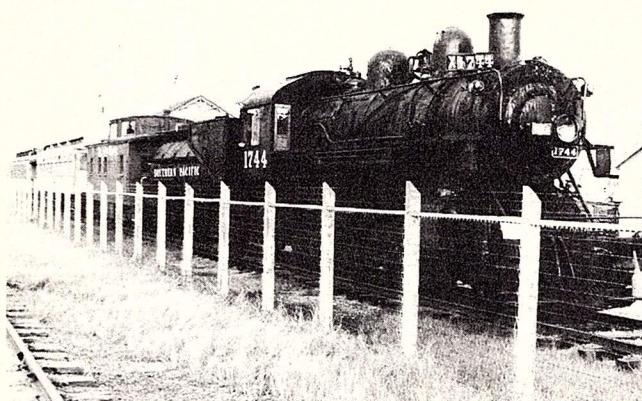
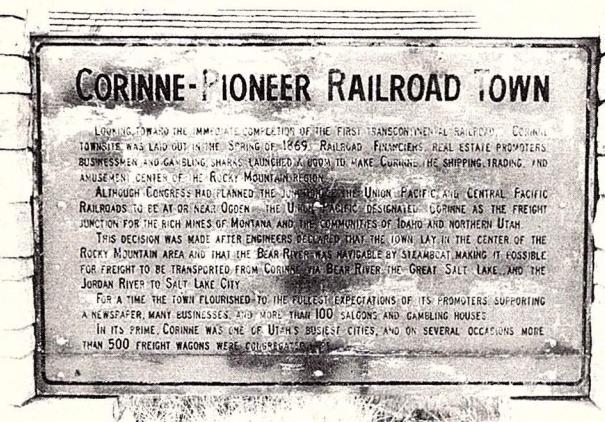
There was bitter rivalry, even animosity among the crews of the two railroads. Violence often erupted when they came into direct confrontation. The Irishmen didn't like the Chinese and the Chinese had a similar opinion of the Irishmen.

Luckily the Mormon construction crews acted as a buffer between the CP and UP crews so they did not come in contact very often. The Mormons were hired for grading by both the Central Pacific and Union Pacific, especially the section from Corinne to Kelton. Mormon grading crews for the two competing roads were often working and camping within a few yards of each other. There was no hostility between them

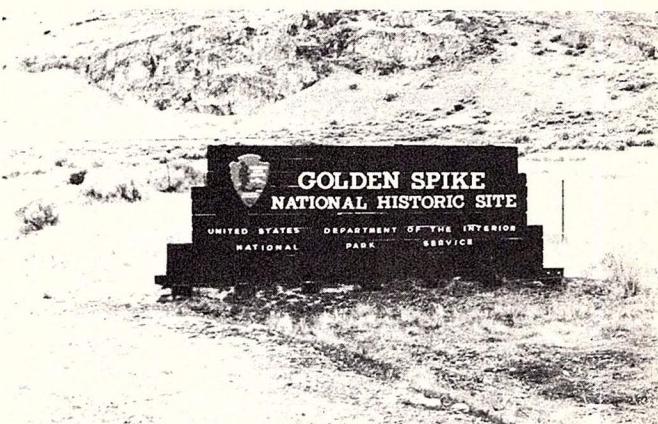
Weathered old sign at Corinne, Utah, giving a brief history of the town.

It's lonely out there between Lucin and Promontory, Utah. Weather changes occur suddenly. Here dark clouds threaten the author as he crosses a dirt fill on the old railroad bed.

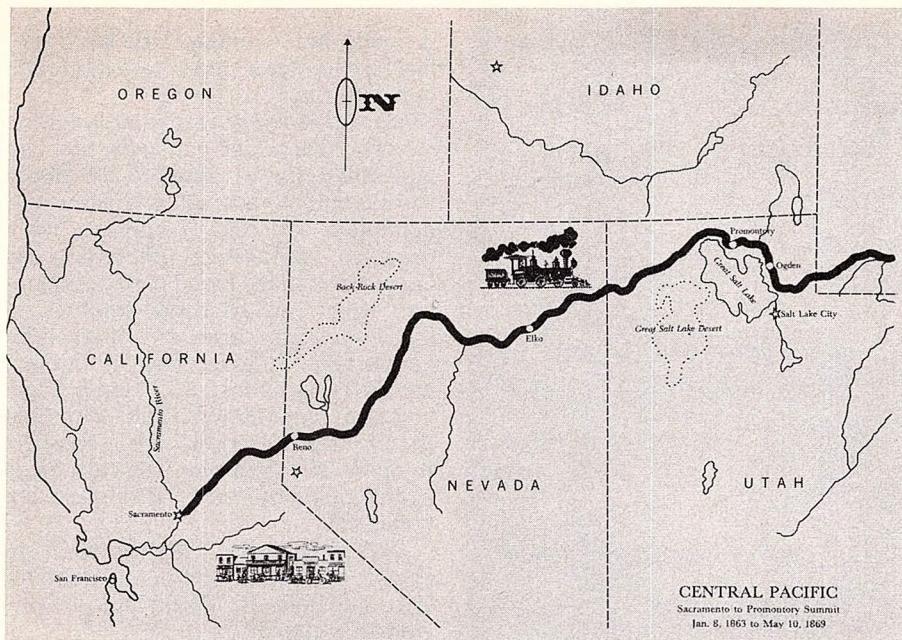
Eastern entrance to the Golden Spike National Monument. Note huge earth fill in the upper right. Fill was completed by Mormon grading crews, who acted as buffers between feuding Irishmen of the Union Pacific and Chinese of the Central Pacific.



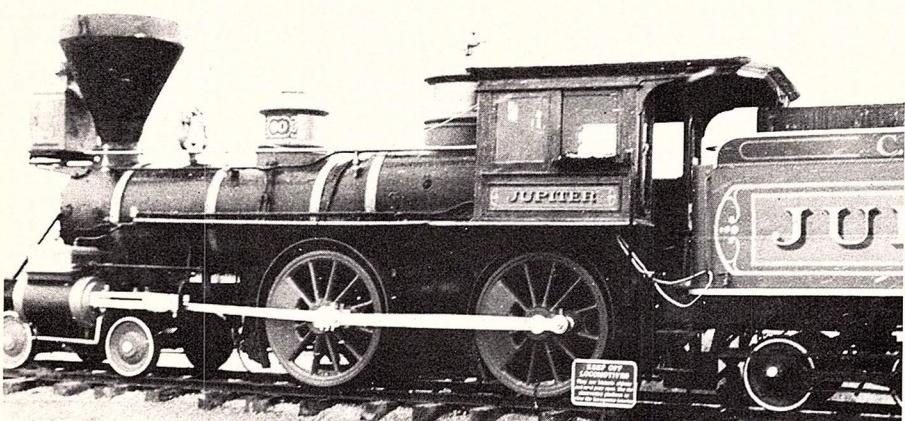
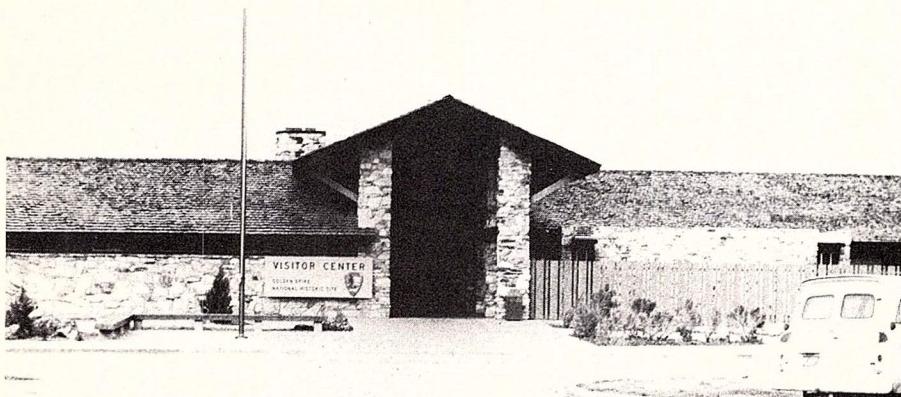
Southern Pacific's old Engine 1744 which logged a lot of miles between Utah and California. Southern Pacific took over Central Pacific, and the track from Lucin to Promontory was abandoned.



Railroad museum in the small farming community of Corinne . . . once an end of the track, hell raising saloon town.



Visitor Center at the Golden Spike National Monument, Promontory, Utah,



Central Pacific's Jupiter Engine No. 60.
If you have a vivid imagination you can
almost hear the long, mournful call of
Jupiter's horn in the desert stillness.

—only friendly competition—things like hiding each others equipment, turning horses loose—stealing into another's camp after dark and dropping a rattlesnake into the soup pot.

The bike whined on past the tiny hamlet of Kelton, now only a remote ranching area in the middle of the desert. In its day Kelton was a progressive railroad town, but it died when the line was moved south, across an earth fill in the Great Salt Lake.

On east to Promontory the Honda kicked up white dust and I tasted the alkali—the bitter saline taste of the salt desert. It's flat and barren for quite a few miles then you can see the Golden Spike National Monument visitors center.

It's a lonely, peaceful valley there at Promontory. But back in 1869 there were Y turn around tracks and several sidings. My Honda was now parked on the spot where the Golden Spike Hotel had stood. Nearby there had been saloons, gambling dens, bawdy houses and other business—but mostly it had been saloons and bawdy houses. Promontory gradually died away to nothing—not one resident—and then not even the railroad.

Promontory was the historic spot where the two railroads joined the nation together on May 10, 1869. It was not the main railroad town in Utah, however. Corinne, now a sleepy Utah farming and ranching community a few miles east, was the town where the action was. It was the most colorful city in the west, especially if you like scarlet. There were 28 saloons, numerous gambling dens, and eighty prostitutes. If 24 hours passed without a murder, either at Corinne or neighboring tent camps such as Dead Man's Gulch it was worthy of notice in the local paper.

There is now a small railroad museum at Corinne featuring pioneer railroad memorabilia, easily accessible on a paved highway, just three miles off Interstate 15 near Brigham City, Utah.

I ended the long bike ride at Promontory. From there a paved highway connects it to the outside world. Crossing the flat desert, the hills and finally the low mountains, under a cool, cloudy Utah sky, I had enjoyed the perfect exhilaration that comes from riding outside the bounds of civilization. In the wilderness I found something that linked me to those hardy men who lived and died there by the lonely, wind-swept rail bed over 100 years ago.

In that tranquil sagebrush landscape I had escaped into the past for a few hours — just me and my bike.



powder puff power

BY JEANNE ALLEN

Let me extend once again a hearty HI to the Powder Puff followers of **Modern Cycle**. My mail bag is getting a few bulges, so I thought it was time to dedicate this column to you, the female types of motorcycling. The contents of the letters this month are all a little different; however, we do all share one thing in common, being on and around motorcycles! The letters I've been receiving are from all over the globe. This gives me a little excitement in my life—I used to think I was weird loving motorcycles and the wind in

my face, now I guess it's pretty much a "norm." Keep sending in those letters and, remember, if you have a clear glossy black and white photo of yourself send it along. If possible (space permitting) I'd like to print it in this column. Unfortunately color snapshots will not reproduce properly; black and white shots are a must.

Dear Jeanne:

I thought you might like an up-date on my last report, especially since it's good news. The South Florida Sports Committee just finished its A.M. Motocross Series. That news

is really not exciting until I tell you that a women's class was included in that series.

We raced every weekend for three months. Our class ran with the two age divisions of Juniors so there were usually over 20 bikes in our combined class. Trophies were awarded separately according to each class size. Most of the promoters would award three trophies to the girls regardless of entries. The cooperating tracks and promoters were: Dean Dyess, Ft. Pierce; Trailmasters Competition Club, Deerfield Beach; and Janelle, Inc., Hialeah. Another A. M. Motocross Series is in the planning, and the women are included!

Only July 30, 1972 the Sports Committee awarded high-point trophies. You guessed it! Even one in the women's class!

Jeanne, we've got the races now and our biggest problem is keeping up the number of entries. The girls are riding to win but most are very conscious of the safety of all the riders in the class. They're there to have fun, not centerpunch someone. Sometimes beginning racers are frightened off by the thought of getting hurt.

Let us hear more about California races because that's the only scale we have to judge our progress by.

The best of luck to all of the Powder Puff racers!

Betsy Small
Pembroke Pines, Fla.

For the benefit of the readers of "Powder Puff Power," Betsy Small wrote to me once before. I printed her letter in the June, 1972 issue of **Modern Cycle**. The motocross action for Powder Puffers in her area was just about nil; however, things are evidently looking up!

I'm sure glad to hear that your Powder Puff classes are shaping in Florida, Betsy. Now all we have to do is get the same thing going in the states in between California and Florida. Boy, what a challenge! Your problem of keeping up the number of entries is an all familiar one to me. My comments about dividing up your Powder Puff class into Novice, Amateur and Expert in our January, 1973 issue may be of some help. I have sent you a copy to look over.

Breaking your class down by experience may give the girls some kind of goal. The Novice riders will ride harder and more often to become Amateurs and the Amateurs will do the same to become Experts. Since trophies haven't been too much of a problem you could award one to each division, and, as entries



increase (hopefully), additional trophies may be awarded to second, third, and so on in each division. The new riders that are sometimes frightened off with the thought of getting hurt may try this system out. They may still leave the starting line with the entire Powder Puff class, but the Novices (or beginners) will only be competing against girls of the same experience. The girls that rode most of the A. M. Motocross Series may warrant an Amateur rating. Although, if the same girl wins a number of the Amateur trophies, bump her up to Expert. This will give some of the others a chance of winning, which is what it's all about.

As for California races, the February, 1973 issue of **Modern Cycle** contains, to my knowledge, the largest Powder Puff race in history—and it happened in California! The March, 1973 issue contains some hot tips on riding motocross from World Champion Joel Robert. He hosted the first-ever all girls motocross school!

Dear Jeanne:
While browsing through a copy

of **MODERN CYCLE** I noticed a girl sitting on a motorcycle and decided to look into the article since I sit on one myself, and I'm very interested in sharing this experience with another female rider.

I am 24 years old and single. I own a 1972 175cc CL Model Honda. I find it a good bike for me. The article mentioned that I was invited to write-in an unusual or exciting experience I have had while riding, but unfortunately the worst was forgetting to turn on the gas and coming to a dead stop in the middle of the road! I do not race the bike as I am not that experienced, but I would like to get into riding a little deeper.

Could you please be kind enough to provide me with the address of Diane Connolly of the Powder Puff Association so that I might obtain information about the organization.

Your reply would be most appreciated and anticipated.

Sandra McPherson
South Bound Brook, N. J.

I'm really happy to hear that the worst encounter you've had while ri-

(Text continued on page 80)



MAIL

(Text continued from page 10)

ford, Illinois 61101. We can't rate the bike since we've never ridden one.—Ed.

Dear Sirs,

I'm writing to you to obtain some information about the publication in the magazine *Modern Cycle* about "The Mindbender BMW" by Sam Bass.

My interest is to obtain the address of Mrs. Mary Hants, specialist of modifications in BMW-VW. I want to do this job and exchange ideas about this with Mrs. Hants.

Please write to me as soon as possible.

Amaury Jore Frain
Sao Paulo, Brazil

We've passed your request for information on the BMW conversion along to Mary Hants. I'm sure that you'll shortly receive much of the information you require.—Ed.

Sirs;

I have been reading your magazine for quite some time now, but have a few questions to ask. I have, at the moment, a 1970 Triumph 500cc, pure stock. How much difference in height

would there be if I put a springer front end (10") on?

I also would like to know if a 900cc Harley is better than a 1000cc XLCH?

I've also caught wind of Vincent coming back. Have you run any comparison tests yet?

Sgt. Ralph Adams, Jr.
Ft. Hood, Texas

In my opinion, too much difference.
Yes or no, depending!
No.—Ed.

Gentlemen:

Please forward the enclosed letter to Nova Products of California. I appreciate your coverage of their product, but would be even more appreciative if you had included their address.

Thanks for the coverage on the Honda XL-250. May I ask what Mr. Yoshimura would charge—never mind—just remembered you gave his address. I'll write him and find out.

It would be interesting to see or hear how the bike does in competition. I'll be looking for it at—well, where are you gonna race it?

Mike Burton

Your letter has been forwarded. Thanks for the kind words on our XL-250 Honda Project. The bike has been raced on several occasions, with varying degrees of success. The project is a con-

tinuing effort and the bike will continue to be raced in order to evaluate products as they become available for this extremely popular machine.—Ed.

To Whom It May Concern:

First of all receive my congratulations for the magnificent *Modern Cycle* magazine published each month. In one of the issues published last year on November, 1971, volume 7, number 11 appears the model kit MRC/Tamiya in 1/6 scale of Honda CB-750 retails for \$19.98. I'm very interested in buying one, but since I live in Panama it's natural that it costs more because of the transportation.

I'll be very grateful if it's possible to find out how much more it costs and the address of the shop where it's sold; that way I'll send the total amount by check.

Hoping that soon I'll have this information, receive my thanks before.

Mario Salas Flores
Base Line, Changuinola
Panama

I suggest you write to Valley Plaza Hobbies, 12160 Hamlin Street, North Hollywood, California 91606. VPH is a very complete shop that specializes in hard-to-find kits.—Ed.

NEW ACCESSORIES FROM GTMA

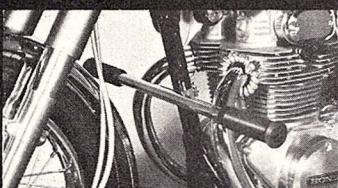
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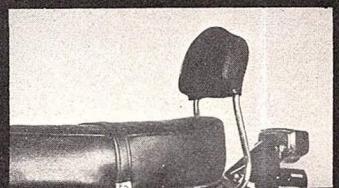
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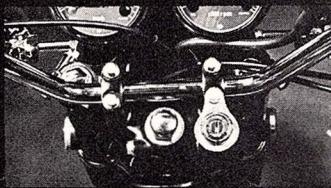
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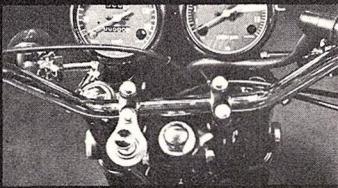
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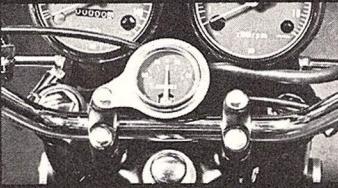
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TAKE A GOOD LOOK



AT THE NEW BELL STAR 120

Bell's famous helmet line takes on a new dimension with the addition of Star 120. The new helmet is manufactured with the same outstanding quality as other Bell Helmets and features luxurious, comfortable, black brushed nylon covered padding that is fire retardant and covers one full inch of impact absorbing expanded polystyrene. The shell is manufactured of high strength fiberglass. Individual sizes, from 6 $\frac{3}{8}$ through 7 $\frac{7}{8}$ insure a perfect fit. A model 240 snap-on Visor/Shield is shipped with each Star 120 model. The new Star-120 model can also be used with goggles or other face shields. Most important of all—the Bell Star 120 meets A.N.S.I. Z90.1-1971, the latest highway safety standard, and is approved by the Snell Foundation.

See your Bell Helmet Dealer.



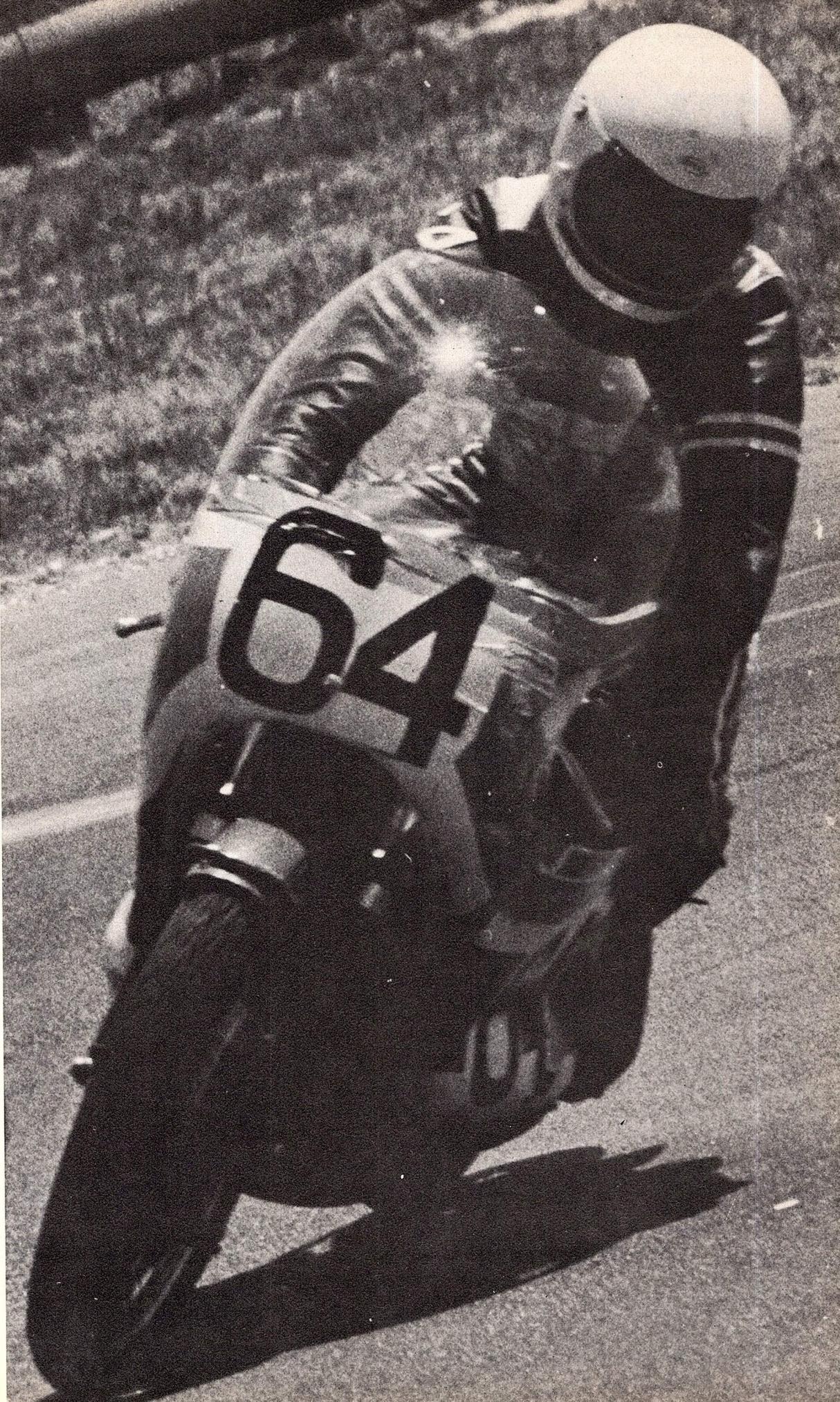
Insist on this mark on every helmet that you buy.



interview: GARY SCOTT

REPORT AND PHOTOS BY JOHN BETHEA AND BUZZ BATY

A FIRST-YEAR EXPERT LOOKS AT A GREAT SEASON



"Heck, I don't know how I'll react."

Gary Scott said it while staring at the television set ten feet away. His apartment in West Covina, California, is small considering the money he has earned as a racer. There is no garage full of deceased machines. There is no line of youngsters waiting for his autograph when he gets up on a Saturday morning. There are no hints at all that would associate him with motorcycle racing. His home is a separate world from that of motor racing; it is his retreat.

"I don't spend much time here," he admits. *"When I'm home all I do is sit. I hate just sitting around; I've got to be doing something."*

He was sitting and impatiently waiting, although he appeared quite calm. ABC's Wide World of Sports was about to air the Ascot Half-Mile National which he won two months earlier. How did he feel watching himself on TV?

"Heck, I don't know how I'll react."

He leaned back, crossed his legs and interlaced his fingers behind his head. A can of beer within easy reach pegged him as a typical Saturday afternoon sports freak. He felt the same anxious moments a year ago when he was shown battling it out with Kenny Roberts as a Junior at the Race of Champions in San Jose.

"It's strange, but Kenny and I didn't race against each other very much that year," the 20-year-old recalled. *"But everybody thinks we did. I don't know why. Whenever we showed up at the same track, it seemed he was in another heat or one of us just didn't make the program."*

"And this past season, I never faced off with Mark Brelsford, really, until the Atlanta Mile and that's when he won the Championship."

Keith Jackson, the ABC commentator, was introducing the show and Gary became very attentive. He spoke in short spurts and pictured the half-mile as a brutal and dangerous sport. Gary sat through it and suffered along with everyone else. He knew and that made it different.

"I'm more adaptable to the different half-mile tracks that we go to," he explained with much enthusiasm. *"I know I've got the edge on most of the riders because I can adapt so quickly. I can really enjoy racing half-miles because I can show up at the race course and know pretty well that I'm going to be in the hunt for the win."*

Surprisingly, Gary reacted differently to short tracks.

"It isn't racing," he flatly remarked. *"On a half-mile all the guys are out there to race and win and most do it within reason. Of course, I think I do, also, but I've had a lot of riders get mad at me, saying I get too close to them or that I drive them off the*

groove. But, I think that's just part of racing. It's different than if you just kick them or shove them off the groove. That isn't racing, but that's the type of race a short track is. Ninety-nine percent of the riders do it, and if you're going to win, you have to do it, too."

"That's why I said I prefer half-miles because they have more wide open racing. You don't have to do those kind of things and I don't because I don't like the other riders doing it to me. Besides, it doesn't show a rider's real ability."

Sitting back in the chair, he looked relieved. But, he wasn't through with the subject.

"Miles are more of a horsepower battle. Then again, I wasn't raised on mile tracks." His eyes moved back into sharp focus after a brief pause.

"I notice that it puts everything in slow motion. I guess a lot of riders like it that way because things don't happen as quick. If you go into a turn, make a mistake and get off the groove, you've still got a lot of time to compensate; you just gradually pull back to it. You can't do that on a half-mile."

They were lining up for the first heat on TV. Gary sipped the suds and exposed a very brief smile as he saw himself on the outside of row one. The green flag went up and Gary tucked behind Terry Dorsch heading down the back straight. Dorsch and Scott are good friends. Terry is perhaps Gary's closest riding friend. They often travel to distant West Coast events sharing countless hours together wrenching, racing or just cow-trailing.

He had gotten home only a few minutes before the program started on the tube; he had been over at Terry's Granada Hills, California, home converting a half-ton van into a three-quarter ton.

"That's a job," he smiled with pride.

Round and round he went on the screen. He had passed Terry and was running away.

"Hey, I sure do look like I'm going fast." He said it with the first real smile he had shown since the program started. However, when it was over he appeared unmoved. Being basically shy, he must force himself, at times, to open up and talk freely. He'd much prefer standing aside to listen. You can't learn, he seems to tell you, if you are doing the talking. Gary is a watchful student.

He is able to walk the track and read it with just as much skill and precision as any of the veterans. Perhaps it is an innate ability, but it is an important part of racing. He gained his knowledge from racing the varied tracks spotted around his native Southern California. Name it, Gary has raced it.

"Sometimes on a grooved track it's

pretty hard to roll the throttle on like you have to do. That's why a lot of guys can't do well on a grooved track. You've got to know how to read the feel of the bike, when the bike is getting traction and if it's pulling good. That's what it's all about; if you can get off the turn hot, you usually win the race."

Winning didn't come right away for the young Scott. He started at age 13 and tried a Yamaha 80. He received a great amount of experience but never the first place trophy. Frustration was approaching when he borrowed his brother's Honda 50.

"I just knew I was going to do good on it," he recalled vividly. Confidence was the trick item. He banged off two immediate wins at Elsinore and was on his way.

He has always been small, a fine attribute for a racer, but he tends to view himself being *too* small. Standing 5-6, he weights a lean 120 pounds. He does not like to eat; when he does it is with a picky attitude, snacking what he likes and refusing to think about his diet. Pizza and Pepsi make a great meal.

Much of his conversation, either hidden or obvious, reverts back to his concern about his size. When it came time to choose another can of beer, he selected the smaller one remarking, *"That big one is just too much for me."* When he talked of road racing, he envied guys like Gene Romero and Jim Rice who use their weight to throw the machine on its side to negotiate a quick turn.

"Even Dick Mann," he admitted, *"weighs 20 or 25 pounds more than I do. I don't say that's the only reason he's better than me on a road racing course . . . but it's one."*

Gary likes to laugh and he did at that one. But, when it comes to actual racing, you seldom, if ever, see him smile. He won't because he cannot afford to lose his concentration, and to young Scott, *that* is everything. *"If you don't have it 100 percent, you can't win. If you lose it, you either slow down or fall."*

His rookie season was remarkably scarce of spills. He can only remember three all season on a half-mile oval. They were all his fault, he admitted, and only one involved serious injuries.

That one occurred at New York's Roosevelt Raceway, a night National. He frankly explains that he lost his concentration while negotiating a turn. Before he realized it he was down. Ted Newton watched the whole thing and did the expected: he followed Gary off the track and ran over him. It is the human response to go where you are looking and Ted couldn't help but look at Gary falling.

At that time Scott was second in the Standings, 10 points shy of

Mark Brelsford.

"When you travel the National Circuit you enjoy it as long as you are winning races, making money and generally on top of everything. But, the minute it starts going bad, that's when it gets depressing. Like Roosevelt."

The following week his bike broke. After that came Peoria's TT, won by Dick Mann for the fifth time in his 20-year career.

"I just barely made it out of the heat to the semi and just barely made it out of the semi to the main. I was on the third row for the National and I wound up ninth. I went through hell and was ready to come home right after that race. I almost couldn't handle it."

This set the scene for perhaps his most bitter moment of the entire 1972 season: Santa Fe Short Track.

"I got a second behind Mike Kidd in the heat race. Then, in the second elimination heat, which is like a semi, I was running second and Bart Markel got inside me on the turn and pushed me out. I slid around and before I got going again I had dropped back to ninth. I worked back up to seventh but they only transfer six. I was first alternate."

It was the only time all season that Gary was an alternate. The feeling is terrible, hoping for someone's bike to quit so you can take his place.

"I was really aggravated because I could have made the main event and I would have done well. Mark Brelsford didn't even make it out of qualifying to the heat races. I was really jazzed. I thought things were really beginning to break my way and I might be able to pick up a few points."

That, in reality, was it for Gary's chances at the National Championship in his first year.

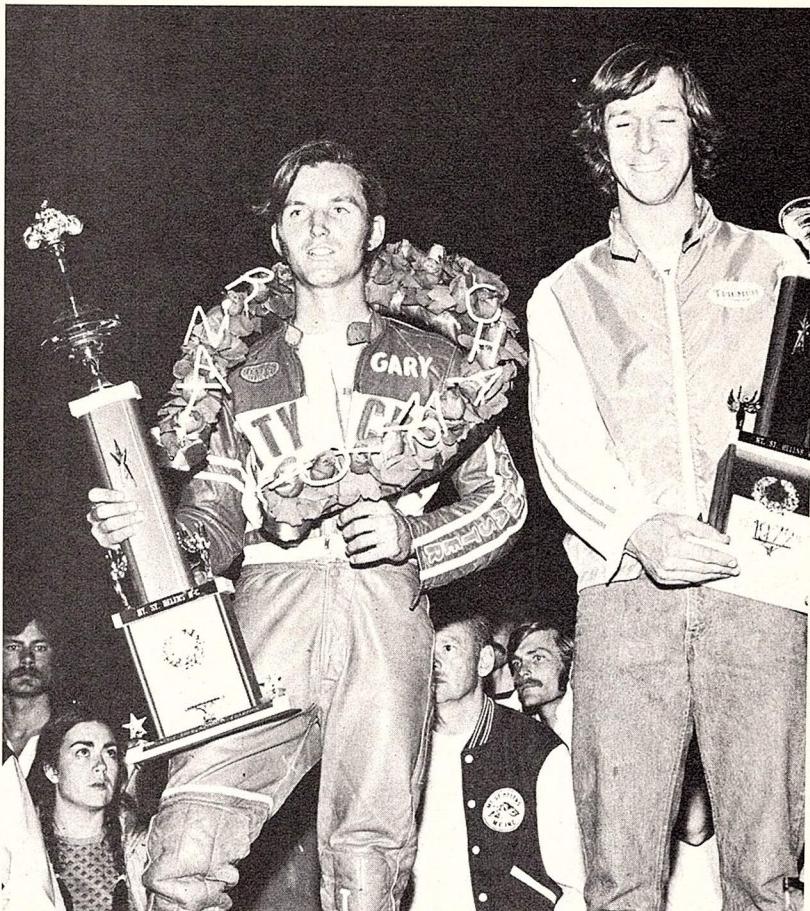
"I could just see that Number One plate fade away. Of course, I was still trying, but luck is involved in it a lot. It's bound to happen once in awhile."

The second heat was over on the set, the one involving two horrendous crashes in the first and third corners at Ascot.

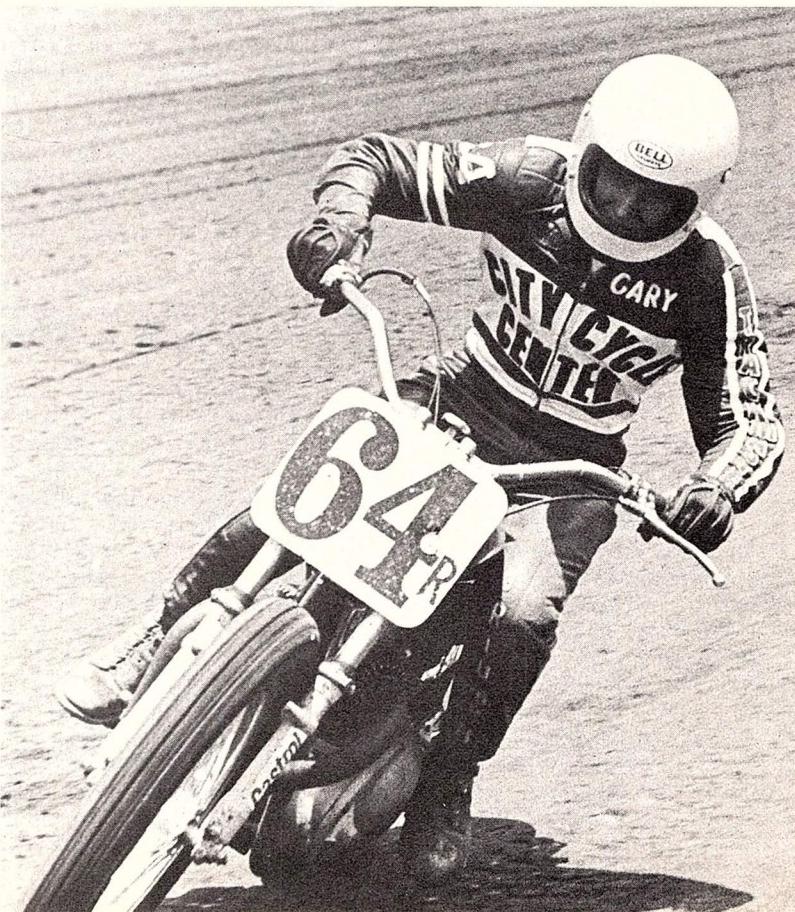
"When Bart Markel fell at Colorado Springs, he fell right in front of me and I missed him about that far." He clinched his right hand into a fist and gapped his thumb and index finger about an inch apart and peered through the opening for awhile. ". . . And I never shut off the gas.

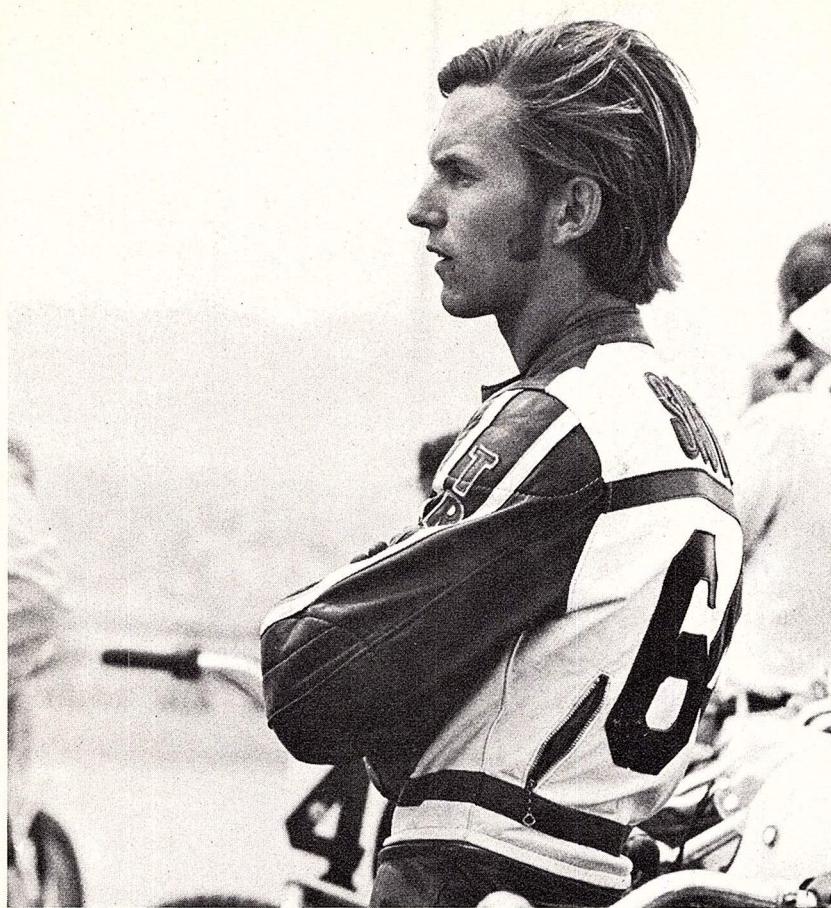
"That's hard to do, but you've got to do it if you want to win. You know people will be falling all around you, but you can't watch them, you have got to sense them almost, and you can't shut off."

The Ascot National was just about to get underway. Jackson, the commentator, chatted with Gary and discussed



Two AMA District 37 Scrambles buddies scored wins at Castle Rock TT. Gary the National and Tom White the Juniors.





A serious moment.



the psyching techniques he uses to prepare for a race.

"Heck, all I wanted to do was race. I didn't want to talk to him right then. It was just before the main. In between my answers, while he was asking another question, I was telling myself 'You gotta win, you gotta win.' Five minutes earlier would have been neat, but not just before the main."

With the interview concluded, the National was about to start.

"Let's see if the TV shows it," he began excitedly. "Remember when Aldana crashed in turn two? Well, he bumped into me from the outside. Earlier in the year, while in front of him, he pulled up on the inside and just plain took over the groove and line I had. I slid out. So, when I saw him coming down at me from the outside trying to take second from me, I just didn't give in—cause this is a National!—so we came together and he went down. I figured I owed him that. I wasn't one bit sorry about it, either."

Unfortunately, the camera zoomed in on Jim Rice's spill in turn one just as Aldana was zeroing in on Scott. You didn't see it. Tom Rockwood, who won the event a year earlier, was out in front and pulling away from Gary. By the halfway point, though, the gap had tightened up considerably, "But he still seemed a mile ahead."

The determined Scott was on the move and several laps later he had taken over the point and was holding it firmly. He won by 40 yards.

"You never get a big enough lead," he said when it was all over. "You always want more and you've constantly got to hold yourself back to conserve the machine."

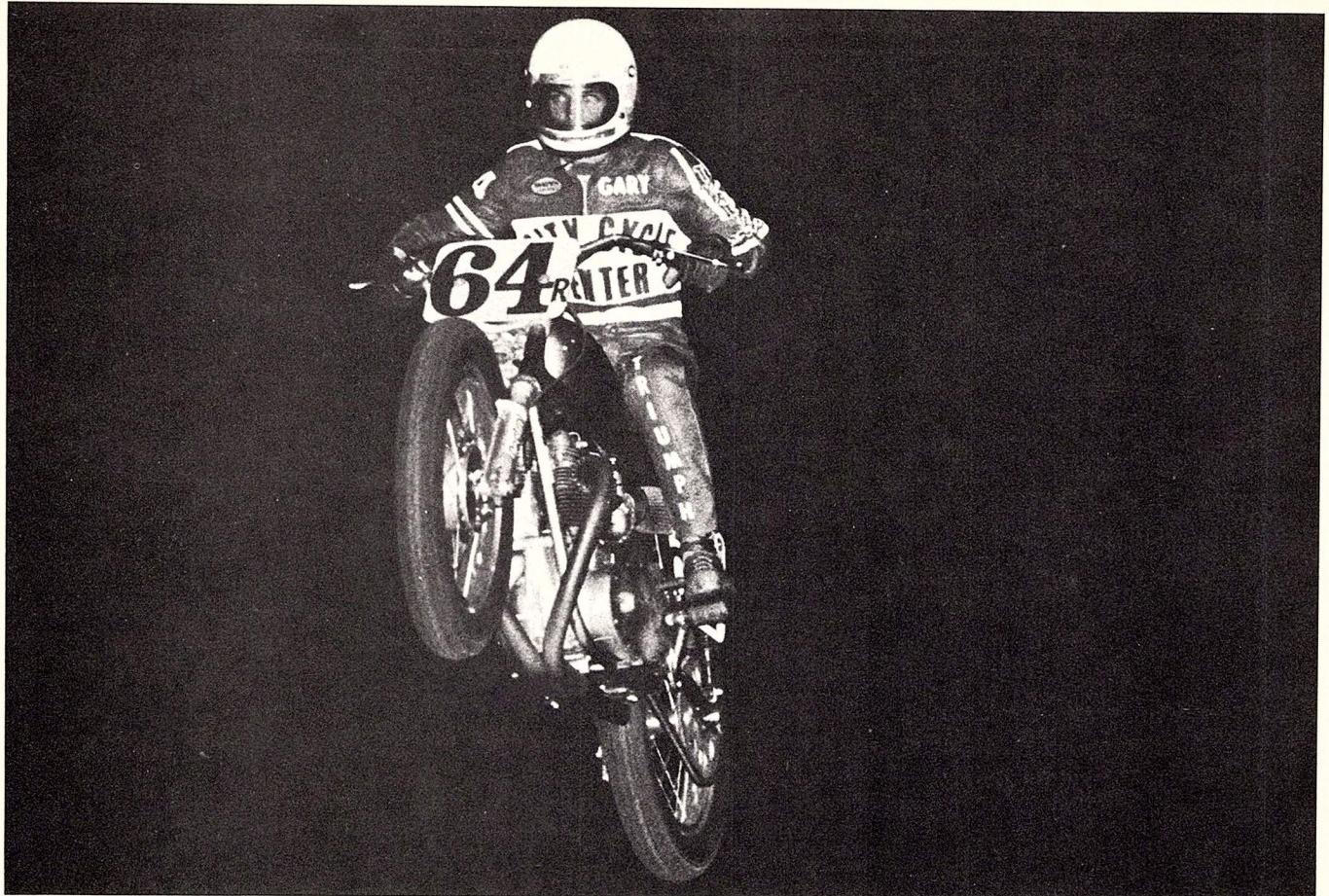
"The race before Ascot, the Atlanta Mile, I had ridden really hard and the little things occurred. It cost me the title. It was the only time all year that Brelsford and I got locked together handlebar to handlebar."

"In the heat we got going strong and he held the lead for six or seven laps and I tried everything to get by but could only keep pace. When he started to pull away I knew there was no way to catch him. But, then I saw him; he looked like he was beginning to relax a bit." Gary is smiling, so you know what to expect next.

"So I moved up on him again and suddenly he gave me an opening and I took it and moved inside him. Well, he tried everything to keep pace, but it was in the turn and he was on the outside and he slipped off the groove and nearly went into the wall. He dropped back to third and I made it to the main with the win."

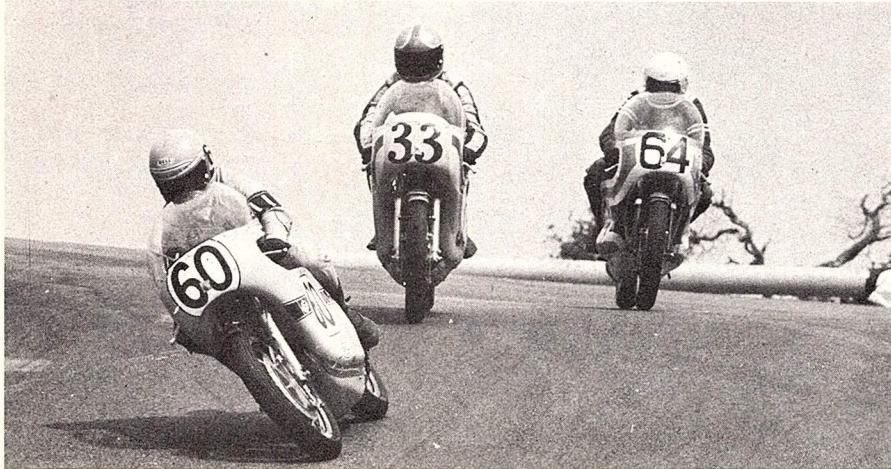
On lap 19 of the National, the ignition points picked up a little oxidation and lost fire.

"That was it. He'd won the Cham-



Mert and Gary.

Kenny Roberts leads John Weaver and Scott at Laguna Seca.



pionship. I wasn't really mad as much as I was disappointed because I had run a really hard race. It wasn't really anybody's fault."

What happened next, however, scared Scott immensely. Instead of chasing Number One, he was now faced with a pair of talented riders breathing his exhaust! Romero and Roberts.

"This really upset me . . . it really got me excited. To finish in second as a first-year Expert is one thing. But to drop back to fourth in the last couple of races would have been a little bit too much for me to handle. So, I knew I had to do it at Ascot."

He did.

But, if there is anything Gary Scott cannot do on a motorcycle, it is road race competitively. He admits it. "I've got a lot to learn."

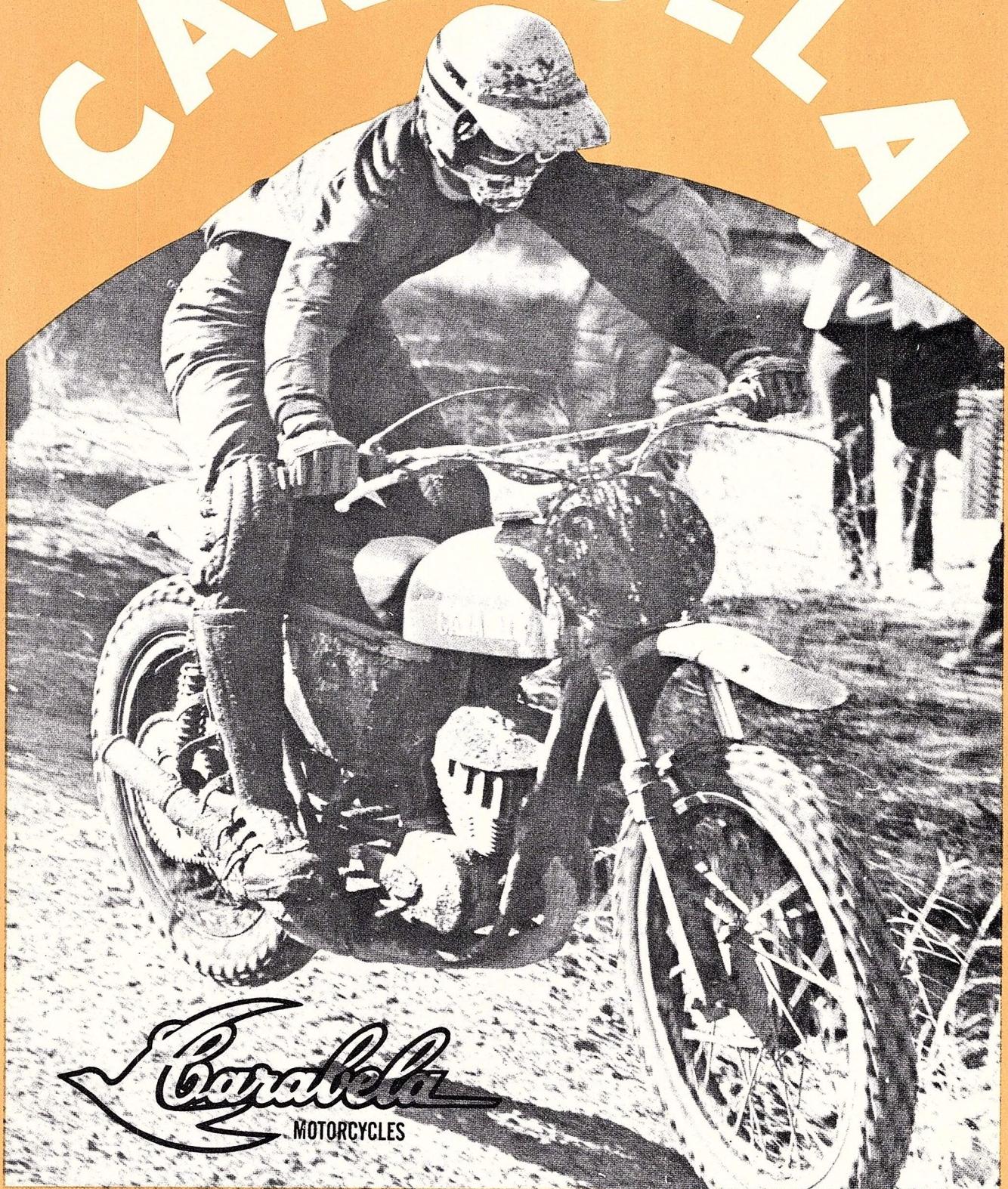
With the increased number of Road Race Nationals in 1973, he viewed his chances at the Championship as a bit slimmer than in his initial season.

"I think it can hurt me because I've made up my mind to try as hard as I can—really hang it out. I've had trouble concentrating all the time in those long road races and that could cause a spill."

"Heck, now that I think about it, last year when I went to Daytona, I didn't even have a road racer. I was contracted with Kawasaki to ride the short tracks at Daytona, but I just could not get a road racer. That's a horrid

(Text continued on page 64)

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**TEST:
YANKEE
ENDURO**

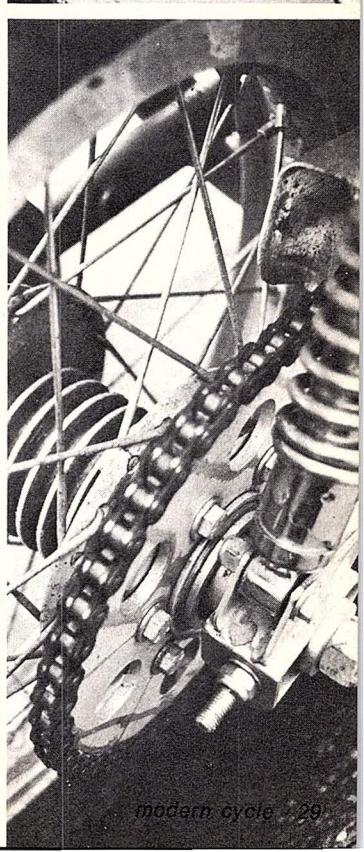
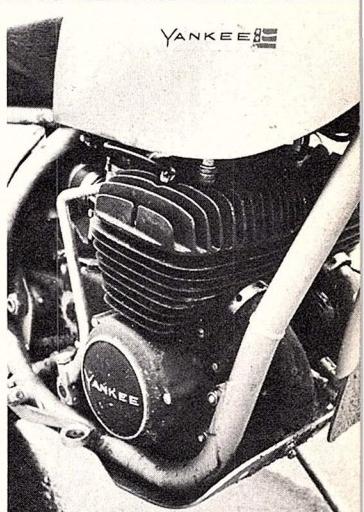
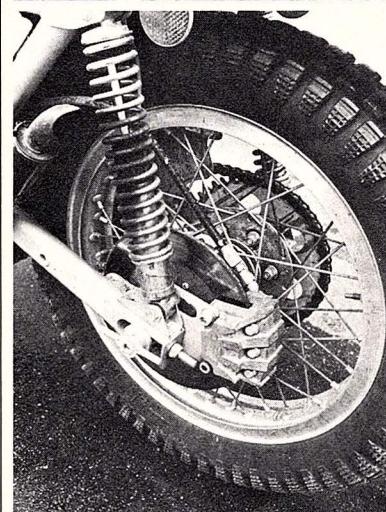
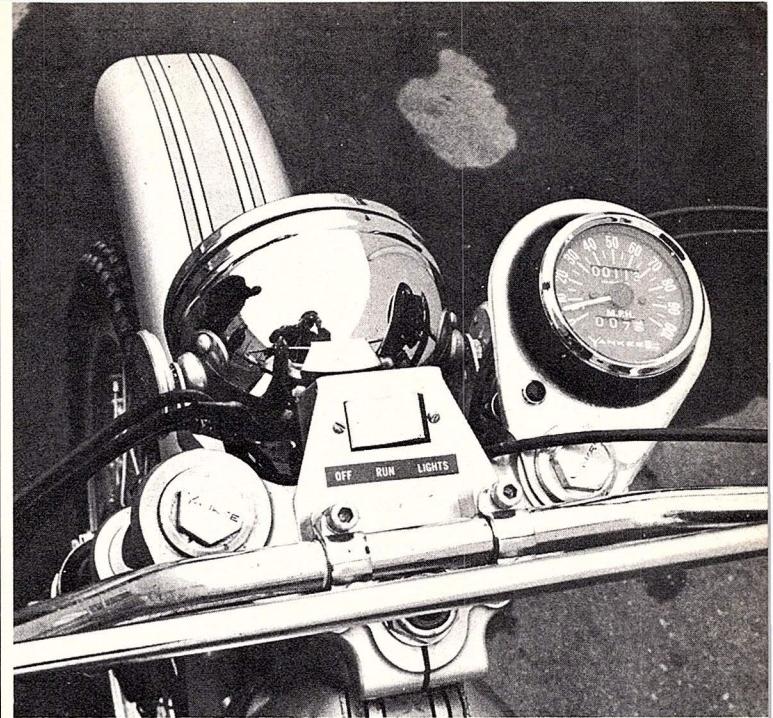
**WHERE WERE YOU
WHEN WE NEEDED YOU?**

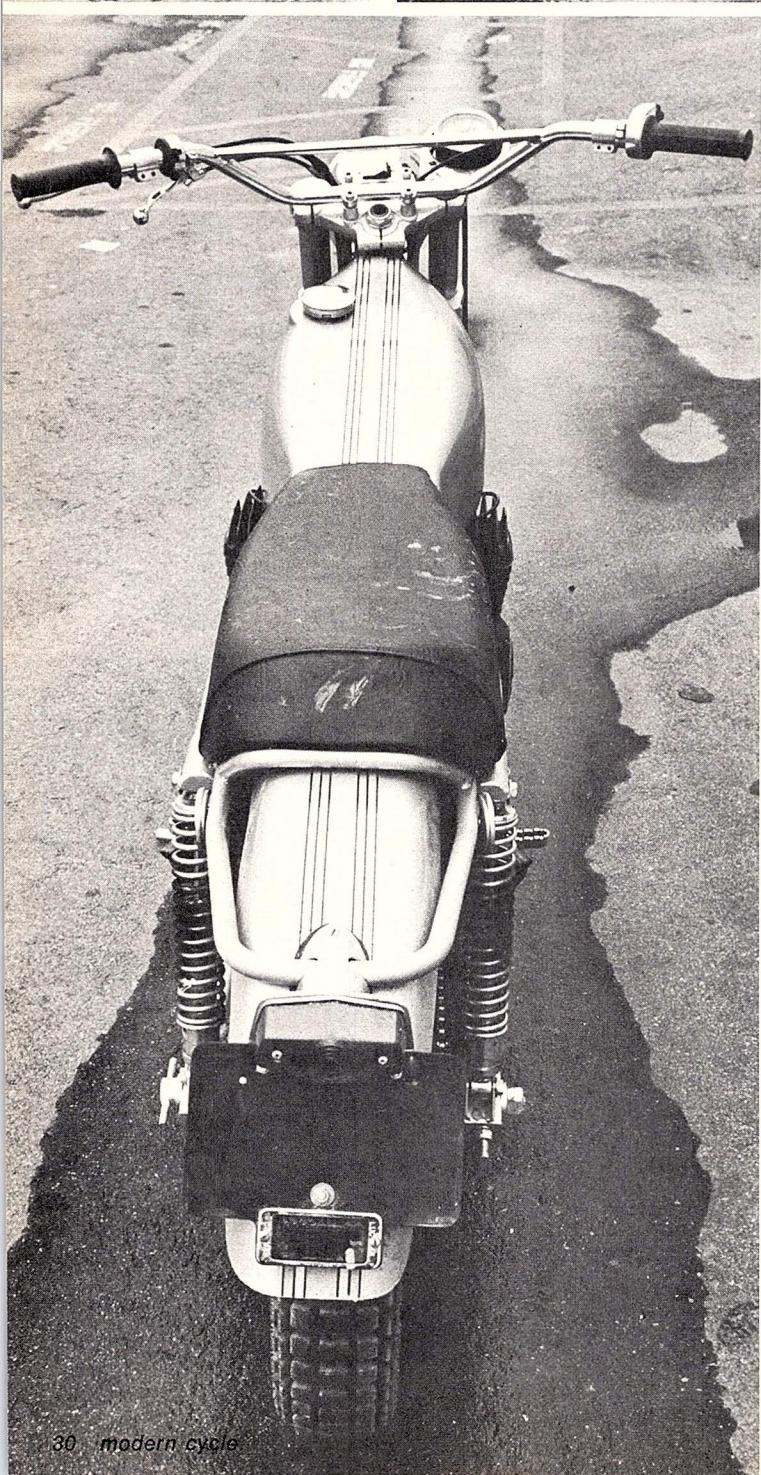
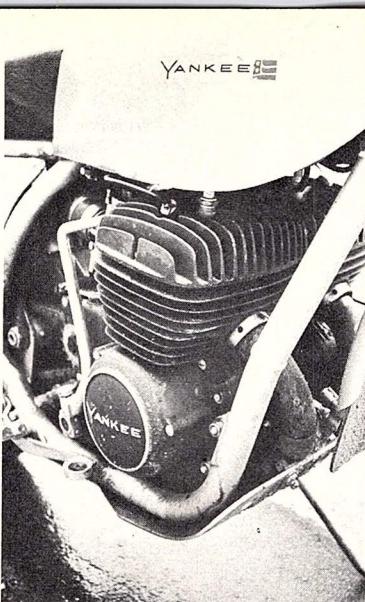
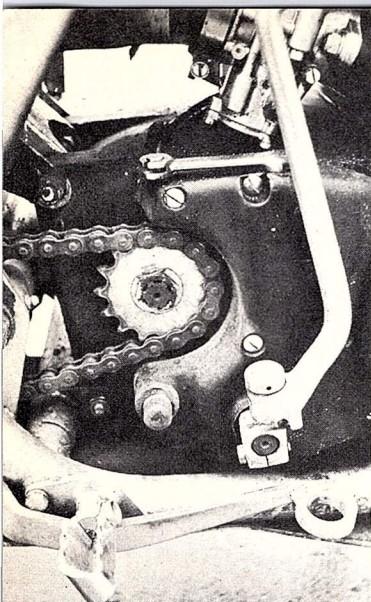
For some time we've been convinced that the Yankee wasn't really coming after all, that like so many dream projects it would forever remain in the very expensive realm of research and development until, having run its course, it would fade, Tucker like, to be talked about a generation later, always with the dubious honor of being regarded as "ahead of its time."

Well, rest assured that the Yankee is really here, right in the market place, but it's a very different one than that which existed when the Yankee was conceived. What was exciting six years ago in motorcycle design is no longer competitive, neither in sport nor in sales. While the Yankee has intrinsic value accruing from its heritage and from its uniqueness, it's in a very difficult market position as a super-serious enduro motorcycle. True, Yankees have enjoyed some fair placings in major endurance trials in this country, including David Eames first overall for the Berkshire Two Days recently completed. However, the Berkshires are David's backyard, and the special tests, although not intentionally tailored to do so, favored the Yankee's speed. Then again, he did beat some excellent European team riders . . . And so it might go, back and forth. Is the Yankee any good or is it a camel? Will it really be produced or is it to be forever a prototype? In answer to the first question we'll let you draw your own conclusions. For the second, well, they tell us that it is indeed ready and available.

The logical point at which to begin a discussion of an all-new motorcycle would seem to be the engine—although the Yankee's chassis holds most of the magic, which will come along later. The engine has been usually described as a pair of mated Ossa pioneer singles, but that's really too simple—and somewhat unfair to John Taylor and his staff who have labored long and hard to develop a bulletproof powerplant with wished-for performance. The Yankee's upper end is essentially a pair of Ossa barrels and heads, but from the Plonker and not the Pioneer. The aspiration characteristics of the Plonker, Ossa's production trialer, in combination with roughly a third more piston area than a 500cc single, provide the Yankee with really incredible bottom end torque.

Both the intake and exhaust tracts are well suited to high torque output, favoring this characteristic over high specific horsepower. A pair of 27mm IRZ carburetors with indexed, adjustable float chambers draw air through a generous still air box located beneath the seat. (A pre-test inspection revealed that the large soft rubber "Y" connecting the air box to the carburetors was split. The piece was repaired with supertape, but on a brand new motorcycle . . . ?)





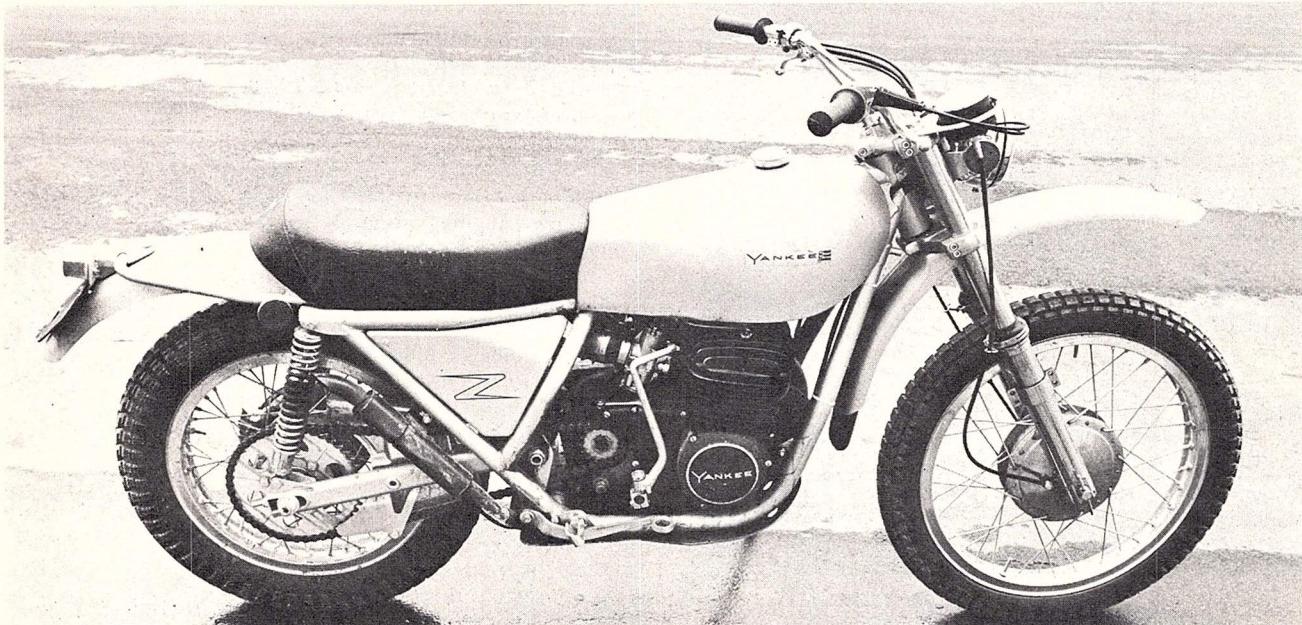
The exhaust system seems at first to be a nice piece of design but this impression changes as soon as the engine is started; the Yankee's exhaust note, particularly at low speeds, is very annoying and violates the hell out of the "less sound, more ground" precept. Most of the difficulty would appear to stem from the large common chamber located beneath the engine. This portion of the system resonates terribly, and doesn't even permit the small individual spark arrestor/silencers to show their stuff. Larger silencers don't seem to be the answer; the resonance in the chamber should be substantially reduced if the Yankee is to make any friends. Incidentally, the spark arrestors are not without fault; their outlets are directed onto the rear shock units and aside from the terrible mess the exhaust garbage creates we can't help but wonder what the exhaust heat does to the damping medium.

Quickly, though, back to the engine; that seemingly simple "mating" of two singles was accomplished through the design of an unbreakable three-piece crankcase. The two crank halves assemble into the large center casting, mating to a common keyed collar which carries a four-row sprocket. The outer crankcase halves (thirds?) carry double row ball bearings outboard of the seals to support the crankshaft ends. Back inside, a chain links the crank sprocket to a jack shaft which in turn transmits power to the smaller of a straight-cut gearset. The large gear carries the clutch hub and from there the power routes into the six-speed transmission. While there is nothing trick about the power path, what happens as gears and shafts give and receive loads is impressive; where there are no bearings in the power path, bronze bushings are employed to keep shafts running true. The bearings that are used are robust and are carried in the massive webbing that is common to the crankcase. Admittedly the engine is heavy (about 120 pounds including exhaust system) but it's also about as bulletproof as it could possibly be.

Ignition, or rather ignitions, are solid-state Femsatronic cranked mounted units which individually, and simultaneously, fire both cylinders. Geometrically, the engine is a 360-degree vertical twin; that is the crank pins are set 360 degrees apart—which also locates them on the same plane. Yankee has experimented with different schemes, including the obvious alternative of setting the crank pins 180 degrees apart. They report that the throttle response is pretty incredible with this arrangement but tractability goes right out the window. The 360 degree arrangement, with the cylinders firing simultaneously, gives the effect of a 500cc single with an enormous piston

mc TEST

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SPECIFICATIONS

Engine Type	TWIN-CYLINDER, TWO-STROKE
Bore, mm	72
Stroke, mm	60
Displacement, cc	488
Compression Ratio	9:1
Bhp at rpm	38 AT 4000
Carburetor	(2) 27mm IRZ
Ignition	MOTOPLAT C.D.I.
Starting System	KICK
Lubricating System	OIL MIST

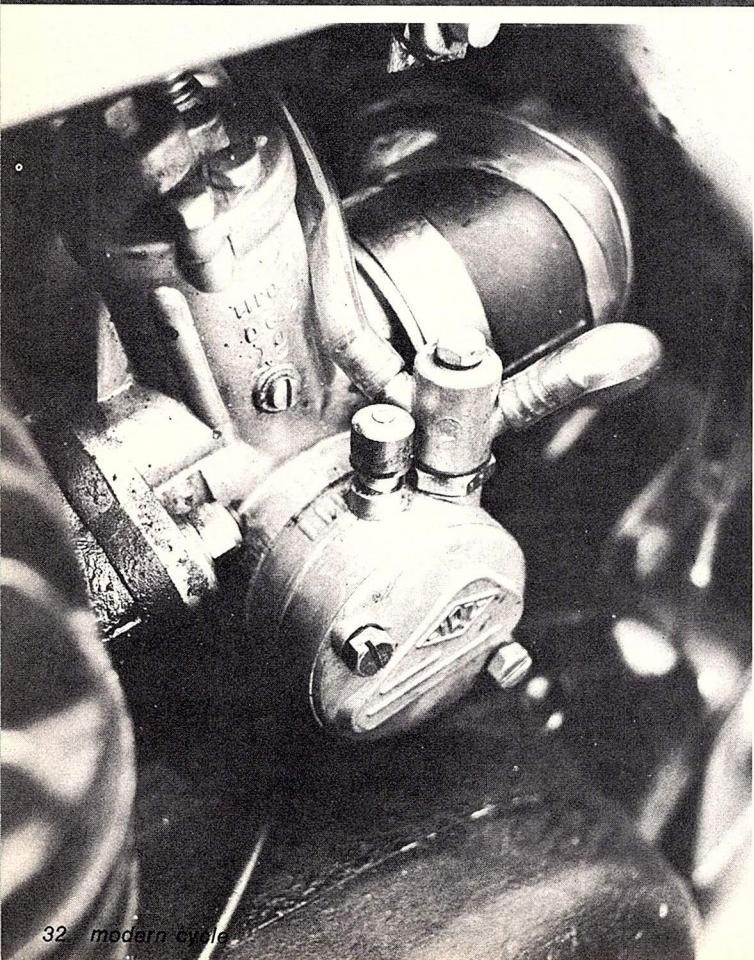
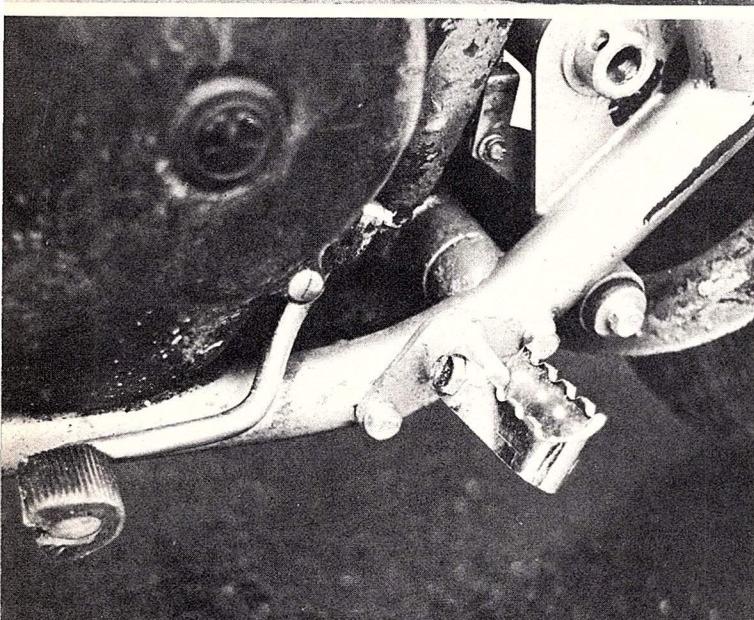
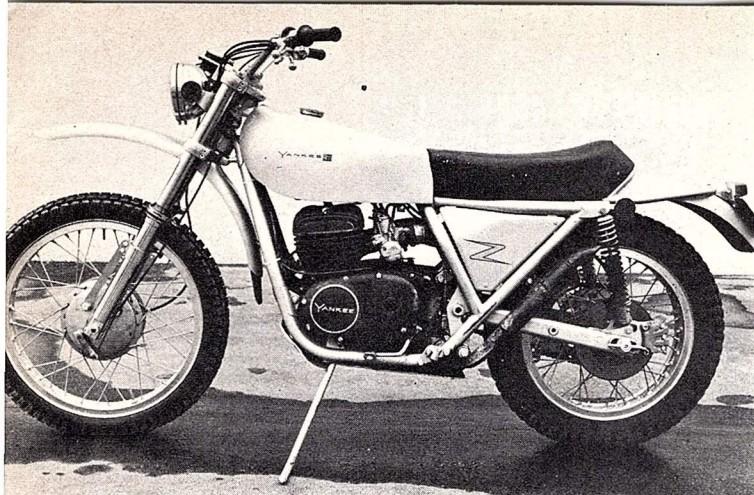
DIMENSIONS

Wheelbase, in.	54.5 TO 55.5
Ground Clearance, in.	8
Peg Height, in.	12.5
Seat Height, in.	31

CAPACITIES

Fuel, gal.	3.25
Oil, pts.	IN FUEL

IMPRESSIONS	Poor	Good	Excellent
Throttle Response			●
Acceleration	●		
Power Band		●	
Starting	●		
Engine Noise	●		
Muffling	●		
Vibration	●		
Handling		●	
Choice of Tires	●		
Suspension	●		
Rider Comfort	●		
Transmission	●		
Instrumentation	●		
Lighting	●		
Toolkit		na	
Paint and Chrome	●		
Mileage	●		
Braking	●		



against which the expanding charge pushes. The net effect is bags of torque, always on hand.

The ignition seems to be virtually trouble free and a good thing it is; it's advisable to remove the fuel tank to gain access to the spark plugs, and all that is required to remove the fuel tank is to remove the seat! The spark plugs with which the Yankee was delivered went belly up almost instantly and were replaced with a garden variety set of Champions which transformed the previously cranky Yankee into a willing starter and runner, impossible to foul and always ready to run cleanly on the top end.

And then there's the chassis. Comprising, almost totally, large-diameter, thin-wall 4130 chrome-molybdenum tubing, the main frame is unlike any other production frame with which we are familiar. It's truly a storybook design with optimum triangulation, flawless fitting and brilliantly executed heliarc joints. Engine mounting plates are handsomely detailed, cut in parallelograms and shaped around half the tube diameter. When the mounts are welded to the main frame the opposing beads begin and end at different points with respect to the cross-section of the frame tube. What this does is distribute the load over a greater distance on the frame tube, and just as important it obviates stress concentrations where the welds begin and end by spreading them over four points rather than concentrating them at two. A neat trick that we're seeing more and more of in motorcycle construction.

The swing arm is an extruded oval section piece done expressly for Yankee. The unit measures an inch in width and two in height (cross-sectionally) and is just as rigid as the main frame. This motorcycle simply does not flex. It is so onepiece in fact that it caused several of us to wonder about some frames we'd tested in the past and rated as flex-free. The Yankee's manners through the twisties are impeccable; the motorcycle refuses to be knocked off line.

The front suspension is excellent—and also trick. The Ceriani legs are made especially for Yankee, considerably larger than standard units (42mm vs. 35mm diameter). The increased size also gives them increased damping fluid capacity (320cc vs. 180cc) which translates into a greater fluid volume with which to dissipate compressional heating and maintain the damping medium closer to an acceptable operating temperature. The fork legs are held firmly in place by a pair of colossal triple clamps that are manufactured by Smith & Wesson, the arms manufacturer. These beautifully turned out aluminum forgings must cost a

(Text continued on page 75)



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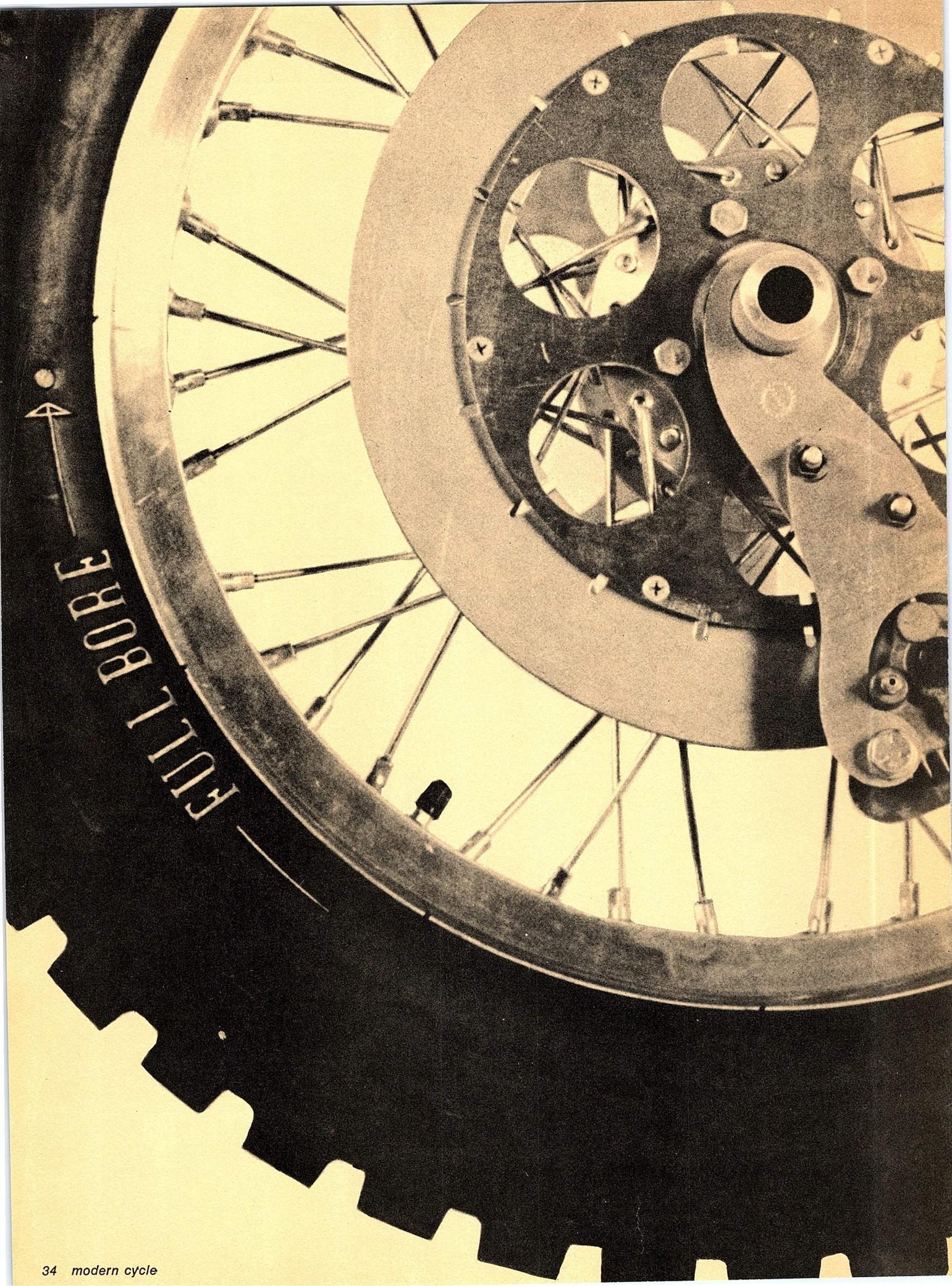
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Aluminum spacer provides the mount for the caliper carrier. The spacers are supplied a little longer than need be, and must be trimmed to fit the individual swinging arm.

the barnes wheel **A TRICK WAY TO GO**

Most people who are into motorcycling at all are familiar, whether they realize it or not, with a very trick unit known as a Barnes wheel. A quick glance at any magazine's coverage of an AMA National dirt event will show that the vast majority of the bikes are fitted with a rather unique rear wheel. From a distance the most noticeable thing about the Barnes wheel is the disc brake. However, a close examination of the wheel will disclose several really sophisticated features.

The basic Barnes wheel is built around a spool hub which is cut from a chunk of forged aluminum. This hub can be laced to a variety of sizes of alloy rims. Forty spokes are standard on the Barnes wheel, and either a Borrani or Akront rim can be ordered. Alloy nipples are used to draw up the stainless steel spokes.

Originally designed for flattrack racing back in 1958, the wheel utilizes a hub that is considerably wider than normal (four inches). This additional width is provided to give additional strength. Extra large bearings are used on all Barnes wheels, and aluminum "collars" are used to bring the center hole down to axle size, and to act as spacers to center the wheel. The collars are usually delivered a little longer than necessary so that the owner can have them machined to position the wheel in the swinging arm.

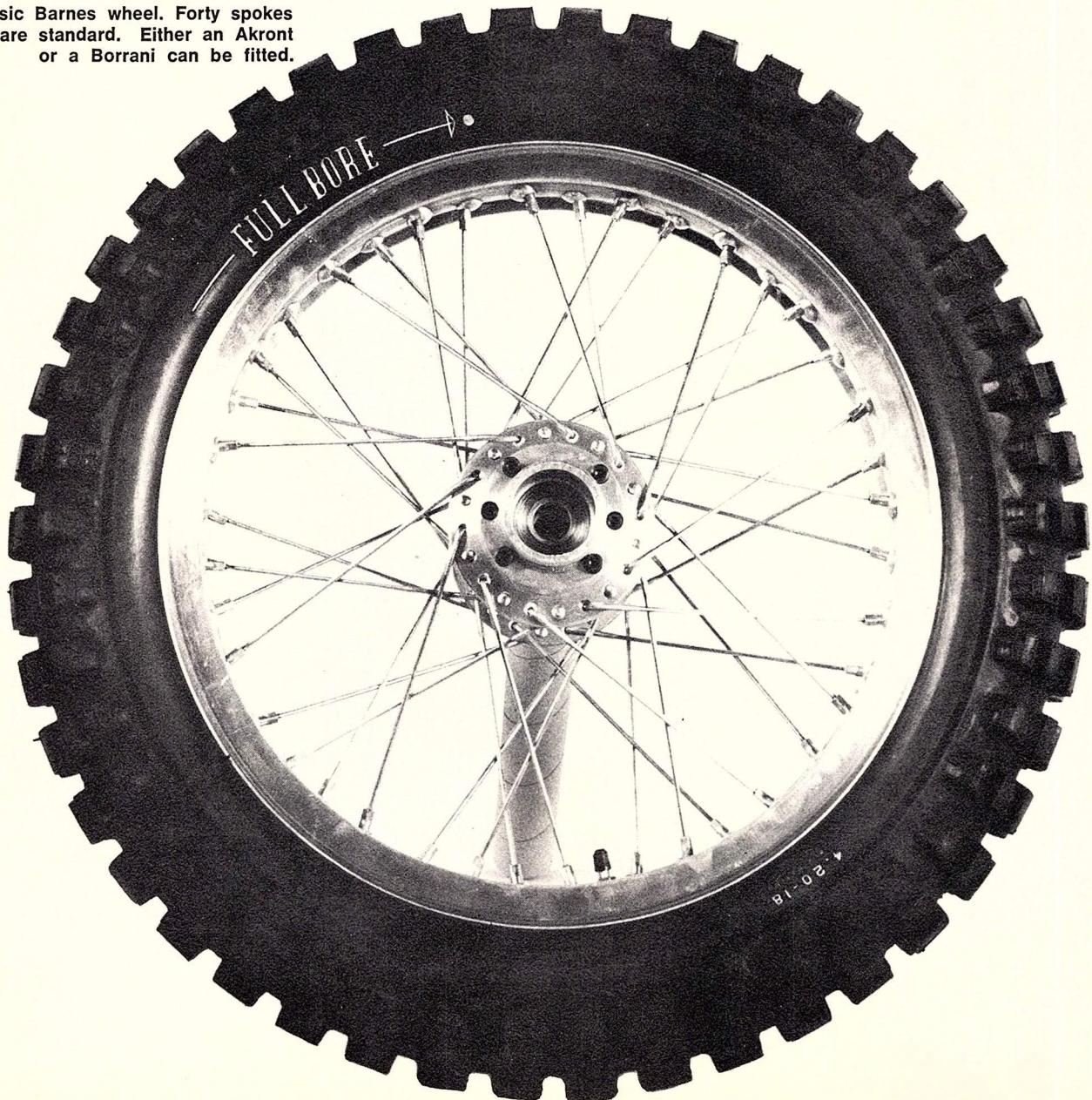
The basic Barnes wheel. Forty spokes are standard. Either an Akront or a Borrani can be fitted.

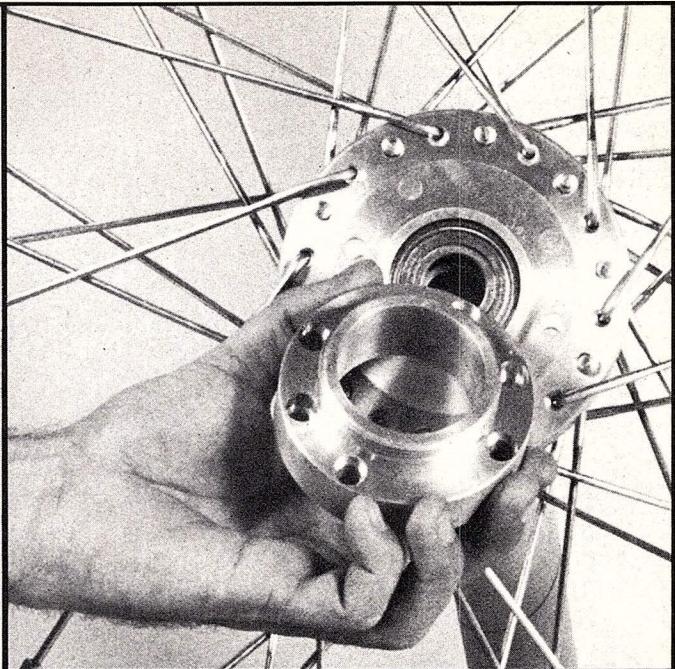
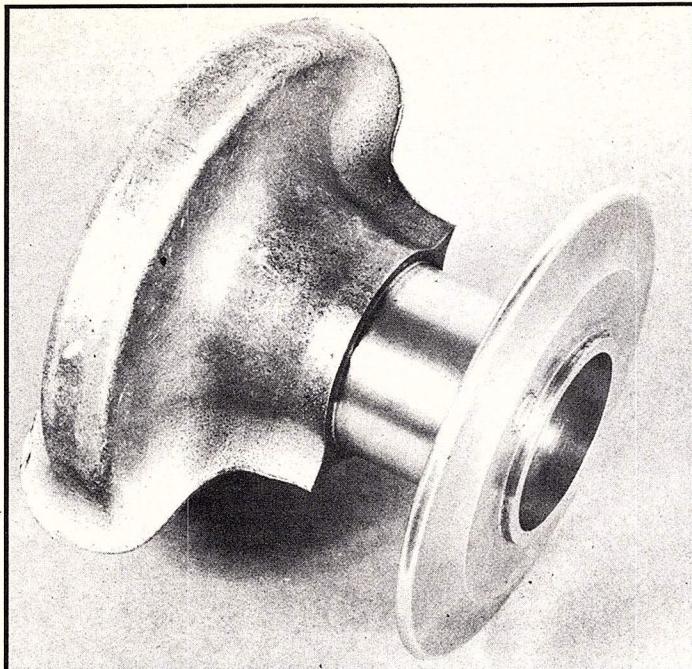
So much for the basics, now we get to the really "trick" features of the Barnes wheel: the Quick Change units that are bolted to the hub. The Quick Change unit is a threaded "collar" that holds the final drive sprocket and brake disc in position. Six Allen head bolts hold each Quick Change unit in place. The heads of four of these bolts protrude and line-up with four corresponding bolts in the sprocket or brake disc. With the disc or sprocket positioned on the heads of the Allen bolts, a "wing" nut is spun onto the threads and hammered into place. The whole thing resembles the knock-off wheel used on many sporty cars.

The advantages of this rather complicated sounding arrangement are many. Flattrack racers like the Barnes wheels for several reasons. In this country, all oval track motorcycle races are run in a counter-clockwise

direction. This means that only the left side of the rear tire gets any real wear. With the Barnes Quick Change arrangement the racer can quickly, and easily, turn his rear wheel around and get some use out of the "fresh" side of the tire. Gearing changes are also quick and easy. A reduction in weight is also one of the benefits found with the Barnes wheel. Last, but far from least, is the fact that the Barnes disc brakes are extremely resistant to fade.

Until we did the story on John Hateley's play bike (**Modern Cycle**, February, 1973) we thought of the Barnes wheels as being limited to professional smooth track applications. The fact that Hateley uses his machine as a cow-trailer opened our eyes to the possibilities of the Barnes unit in off-road applications. All of the advantages, lightness, convenience, etc., of the Barnes wheel

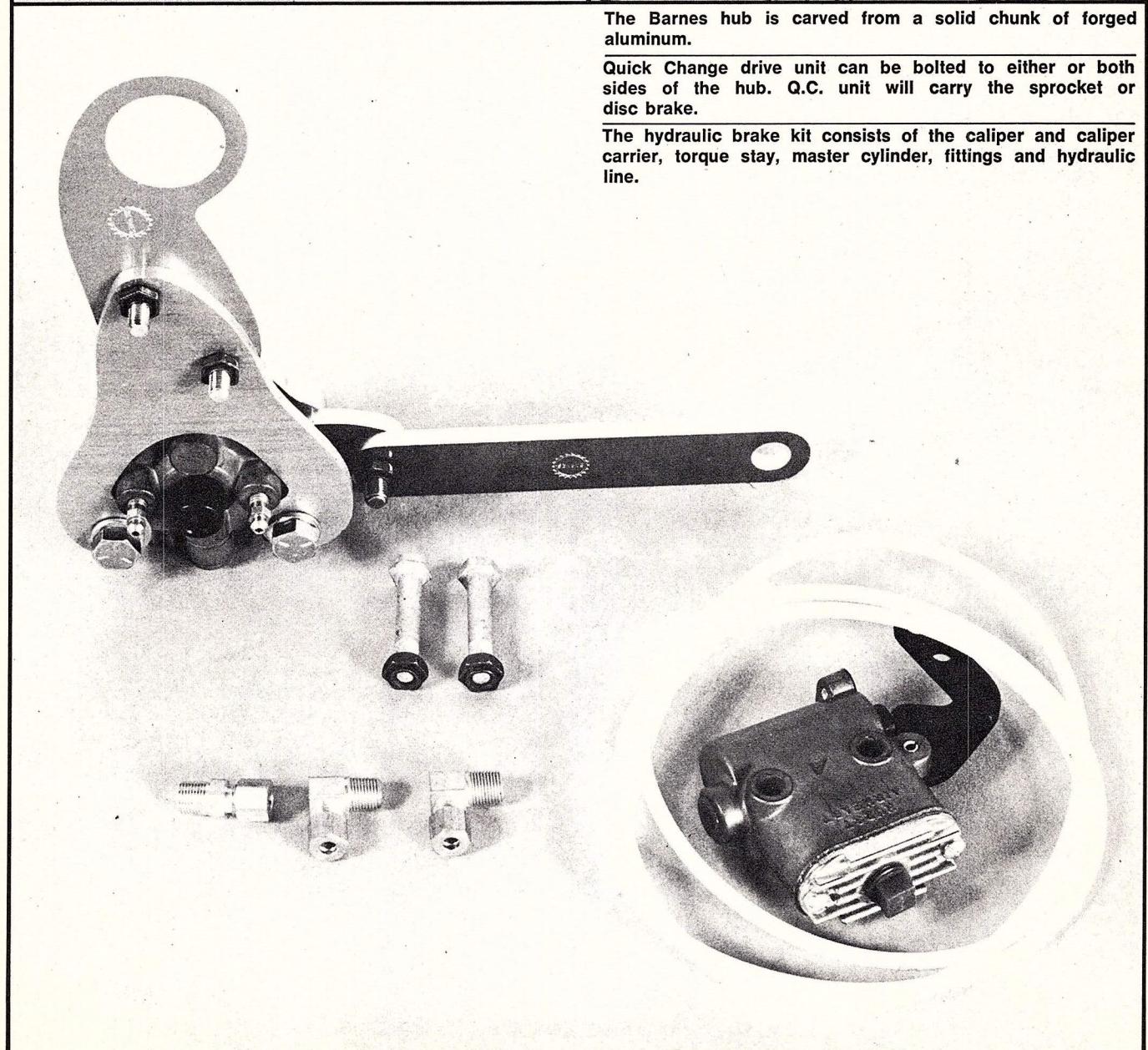


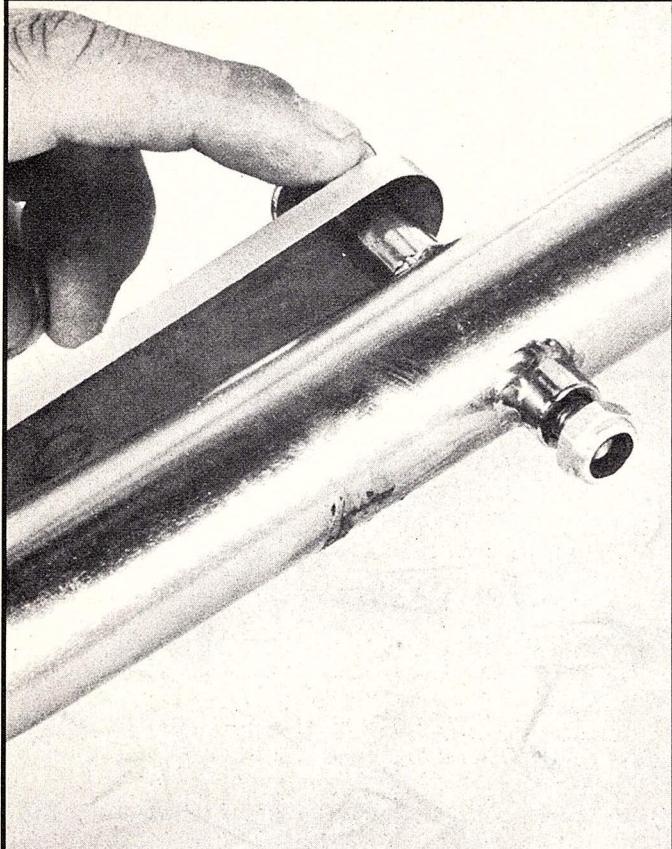


The Barnes hub is carved from a solid chunk of forged aluminum.

Quick Change drive unit can be bolted to either or both sides of the hub. Q.C. unit will carry the sprocket or disc brake.

The hydraulic brake kit consists of the caliper and caliper carrier, torque stay, master cylinder, fittings and hydraulic line.



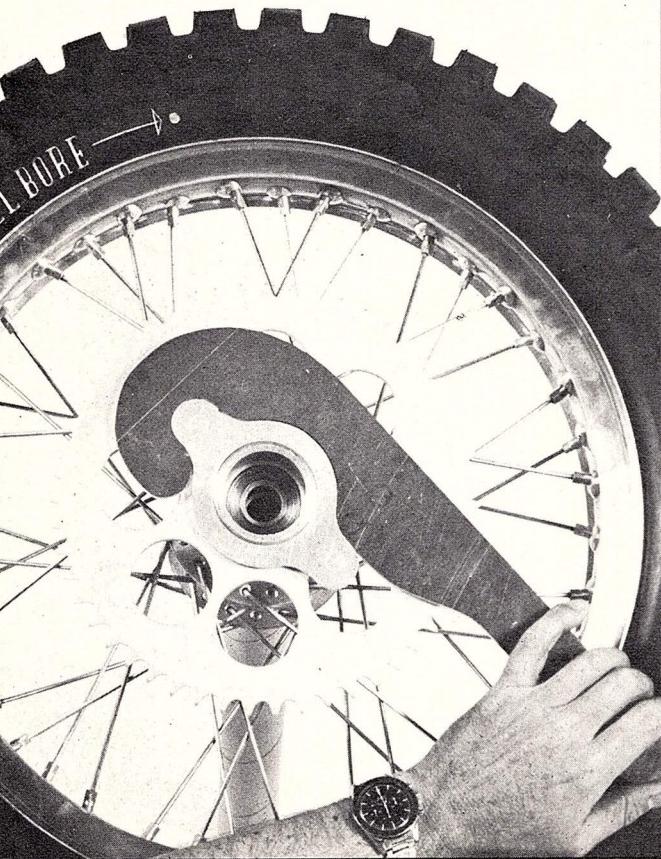


Drive units are held in place with six Allen head bolts. Two bolts are flush, while four are extended to provide "pins" to hold the disc or sprocket.

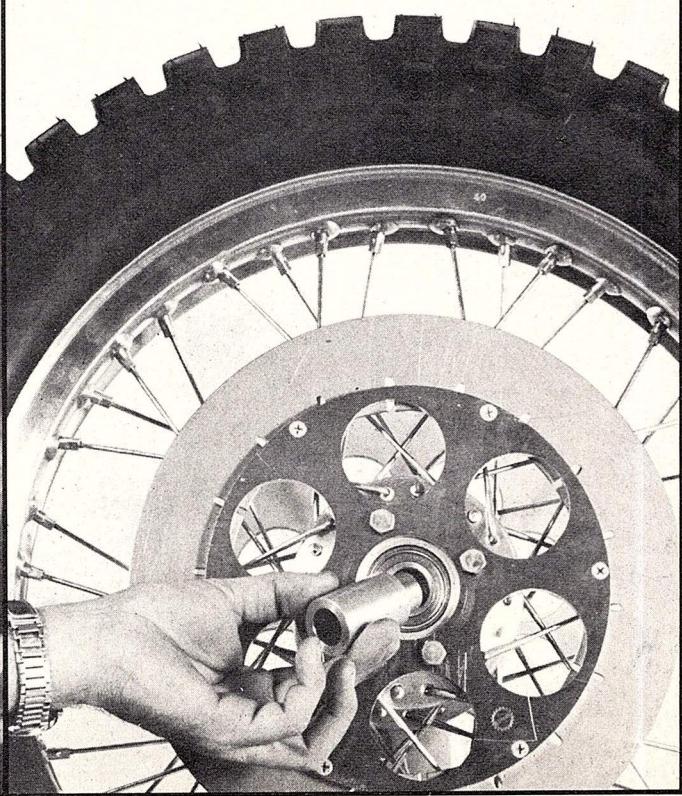


Torque stay retaining tube must be welded to the swinging arm. Location is not super critical; approximately eight inches ahead of the axle slot is a good starting point.

The sprocket is placed in position and secured with the giant wing nut. Special wrench, supplied with the kit, is used to tighten the nut.



Alloy spacers align the wheel in the swing arm. Spacers are drilled to handle the proper size axle.



carry over into the off-road field with one important plus. The disc brake is completely unaffected by water; as a matter of fact, a good application of oil on the disc will only reduce braking efficiency by about 20 percent.

When using the Barnes disc brake assembly on an off-road bike it is suggested that the disc be bolted directly to the hub, rather than to the Quick Change component. Bolting the disc directly to the hub moves it inboard where it is not likely to be harmed by rocks or brush. In flattrack racing applications the caliper assembly is carried below the swinging arm. However, in off-road use the caliper can be rotated upward to a mounting point above the swinging arm. Naturally, this moves the assembly out of harm's way.

Regardless of the manner in which the caliper assembly is mounted, the entire unit functions as a floating braking system. The caliper carrier rides on the axle spacer and centers itself. The torque tube stay location is not super critical. A small diameter tube is welded 90 degrees to the swinging arm approximately eight inches ahead of the axle slot.

For motocross the brake disc is bolted directly to the hub instead of to a Quick Change drive unit. This moves the disc closer to the wheel and out of harms way.

This tube provides a mount for the torque tube. Regardless of whether the caliper carrier is mounted below or above the swinging arm the torque tube stay location is the same.

Also provided with the disc brake assembly are the master cylinder, hydraulic fittings and hydraulic line. The hydraulic line is a plastic material designed to withstand 2500 PSI of pressure. This material can actually be bent double without cause for alarm. It is designed for use in controls in aircraft, and thus needs very stringent requirements. For those who intend to indulge in extremely rugged cow-trailing a piece of windshield wiper hose can be slipped over the hydraulic line for added protection. In some cases, particularly on certain very popular models of motorcycles, a master cylinder mounting plate can be furnished by Barnes; in other instances the owner will have to devise his own mounting brackets.

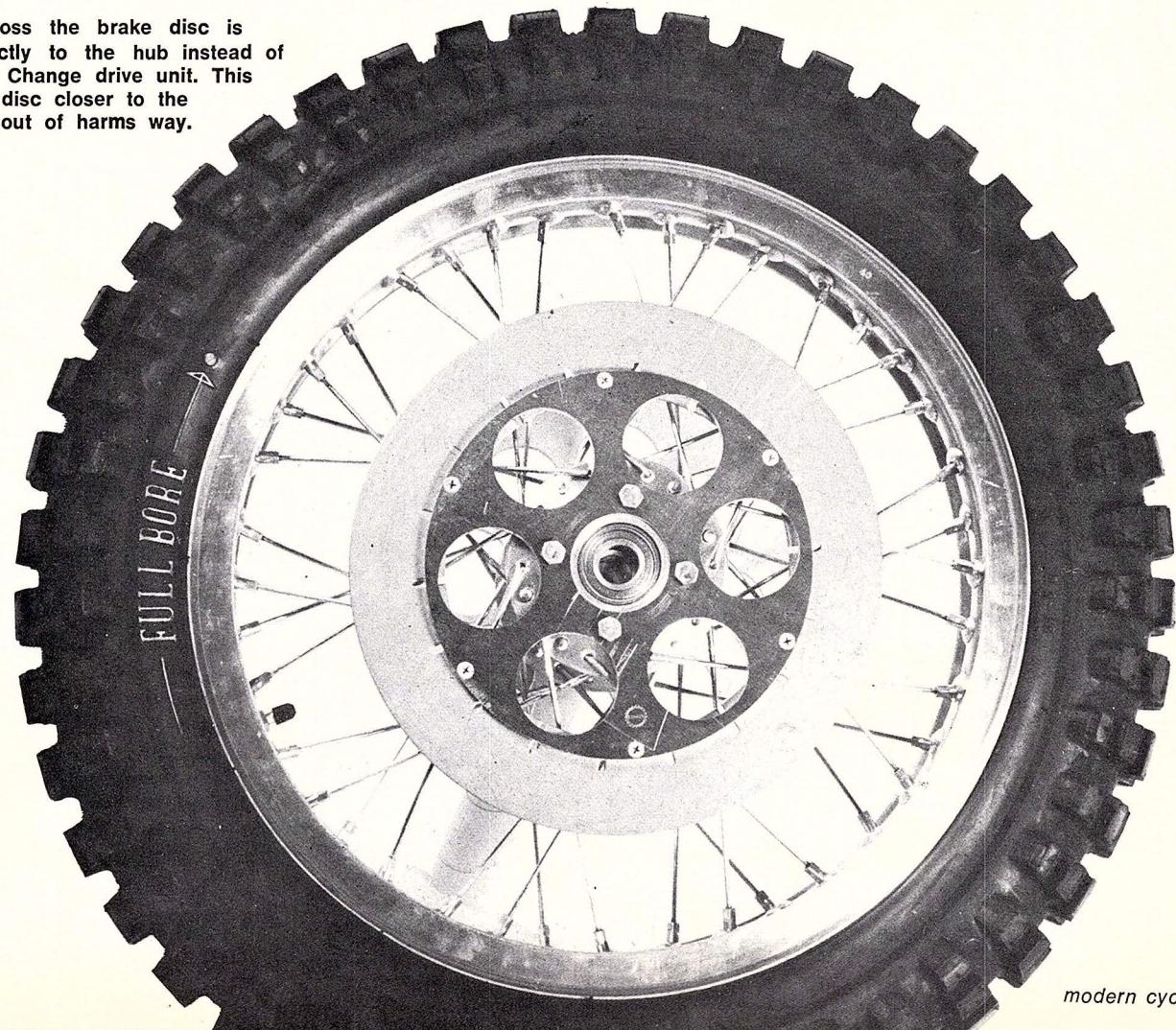
After watching John Hateley's Barnes-equipped bike function as a very successful motocross racer, and an equally successful cow-trailer, we are convinced that the Barnes wheel does offer definite advantages for off-road applications. Barnes furnishes

his own sprockets, and a complete wheel, less rubber, weighs in at 15.5 pounds. This is considerably lighter than the same rig found on most stock machines and it compares very well with the rear wheel found on super-light motocross racers like Huskys, CZs, etc.

Of course the advantage of having a fade-free and waterproof rear brake has to be considered when evaluating the Barnes system.

Obviously, anything with this much quality is going to cost. The complete Barnes rear wheel (hub, rim, spokes, nipples, QC unit, etc.) goes for \$185.00. This includes the brake disc and hydraulic brake system. Wheels can be ordered made up just about any size rim from 16- to 21-inch. While the Barnes wheel assembly cost a lot of money it offers a lot of quality. Some comparative shopping will show that the Barnes rear wheel is really not all that expensive when compared to other extremely lightweight racing wheels.

Complete information on Barnes products can be obtained by writing to: Barnes Engineering, 10146 Stagg Street, Dept. MC, Sun Valley, California 91352. •





A MIDI
MXER FROM
THE LAND
OF THE
WALTZ KING

**TEST:
PUCH M125
MOTOCROSS**



With the advent of an honest-to-goodness 125 class Grand Prix motocross in Europe we can expect to see more honest-to-goodness 125 motocross machines finding their way into the market. One of the latest such offerings is Puch's new 125, a serious MXer in spite of its displacement. The Puch M 125 is just fractionally smaller than a typical 250 motocrosser and as such affords a full size feel. Its very low weight (about 215 pounds wet) makes it an instantly pleasant motorcycle, one you're inclined to begin wringing out right from the start.

Daimler Puch has been building motorcycles for many, many years, longer than most manufacturers. Over the years only a few of the product have found their way to the U.S. Several importers have given the marque a whirl from time to

time, but the first really serious effort to establish the product in this country was made by Hercules Distributing Corporation, located a few miles from **Modern Cycle's** offices, in Chatsworth, California. HDC apparently feel that the motorcycles are worth the effort for they've gone to a great deal of trouble and expense to provide full dealer support in service training and spares. In the past these factors were absent from the Puch picture, and from many other good products as well.

For those familiar with Puch motorcycle engines the word "bullet-proof" comes quickly to mind. The 125 shares most of its components with Puch's 175 model and gains a lot of strength in the process. The vertically split crankcase is a virtual maze of webs between bearing bosses, and between the bosses and

the outer walls of the cases. Casting quality is uncommonly high, a credit to the foundryman's art. The pressed-together crankshaft/flywheel assembly is supported in a large roller bearing main on the left and a ball bearing on the right, set outboard of the seals. Needle bearings are used on both ends of the connecting rod. The large alloy barrel is fitted with a cast iron liner and bolts to the crankcase. Likewise, four studs in the top of the cylinder are used to bolt on the radial-finned alloy head. No tricks, no magic, just excellent execution of sound, proven design principles.

The 125 is fitted with a 30mm centerfloat Bing carburetor which breathes through a large, oil-wetted foam filter set high in the center frame. The filter is carried in a lightweight aluminum airbox which is

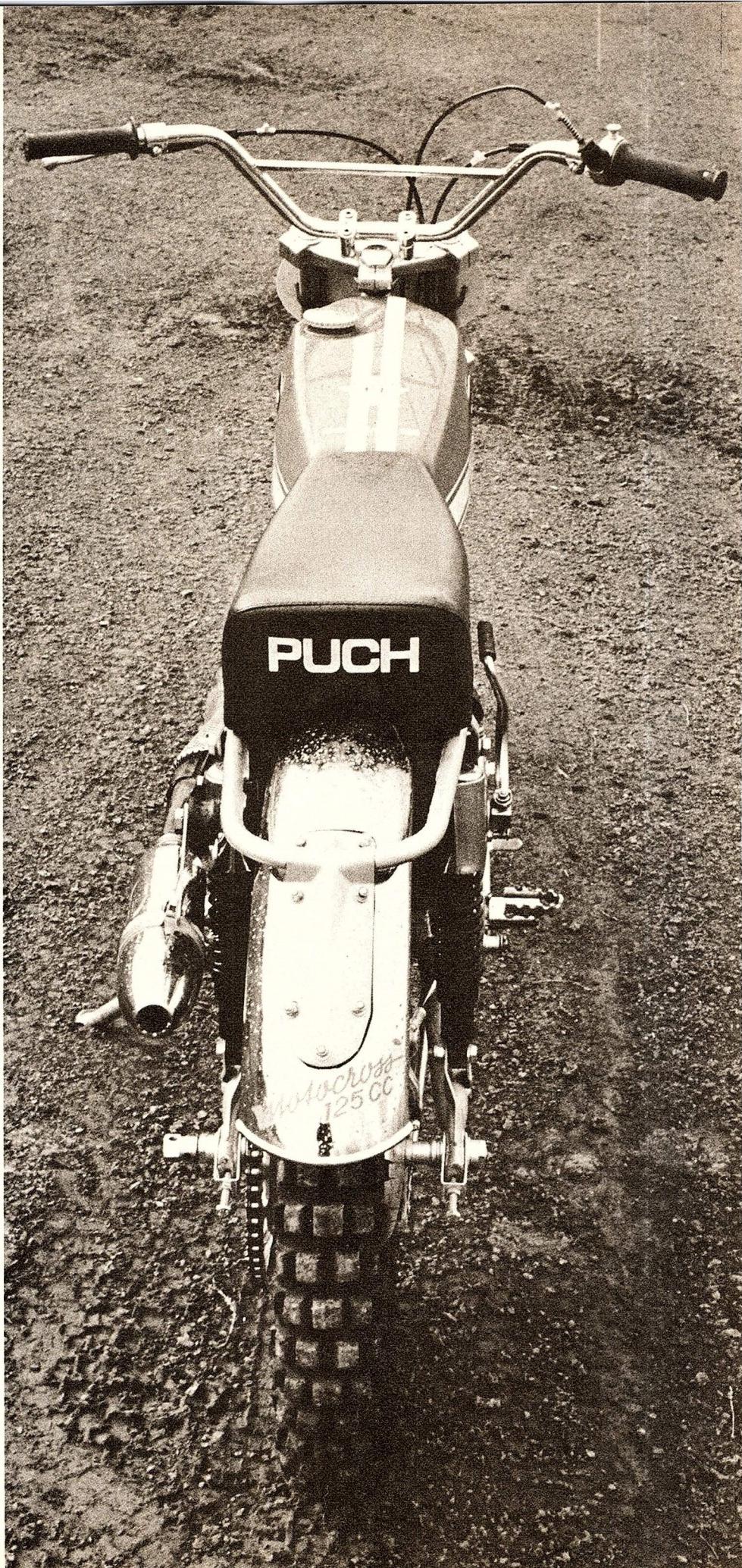
protected by a light, fabric splash curtain that encloses the top as well as the sides. It may not look as neat as an exposed plastic or metal airbox but it's certainly lighter than rigid weather protection and our experience has shown that well designed and secured curtains are every bit as effective at protecting air filters from mud, and water. A curtain offers a further plus in that it is dead simple and quick to remove to service the filter.

The Puch's exhaust system is a good balance between performance and noise. The silver banana auxiliary silencer evidences little back pressure. Its removal raises the audio agony level considerably and the attendant performance increase is infinitesimal.

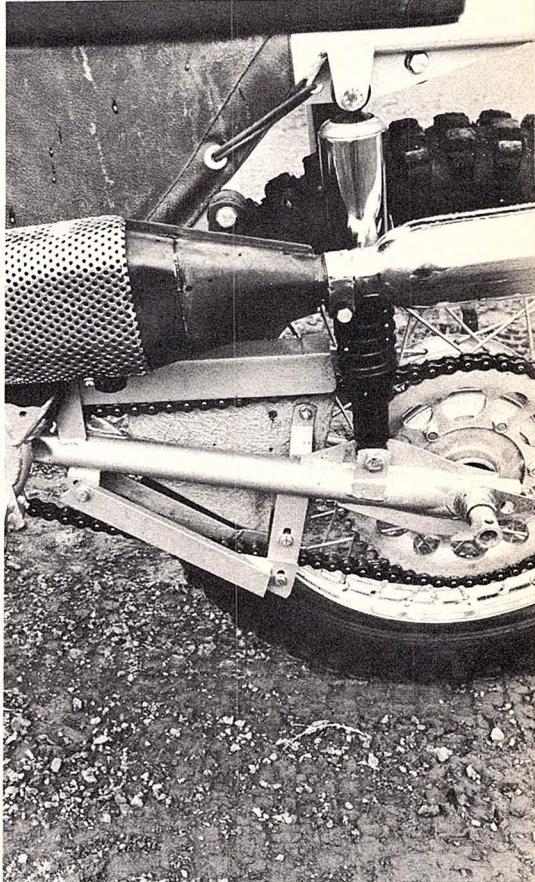
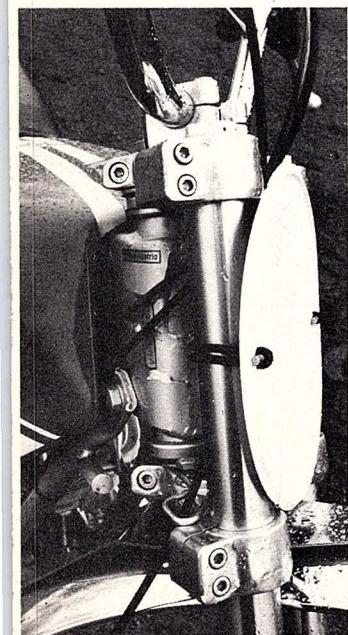
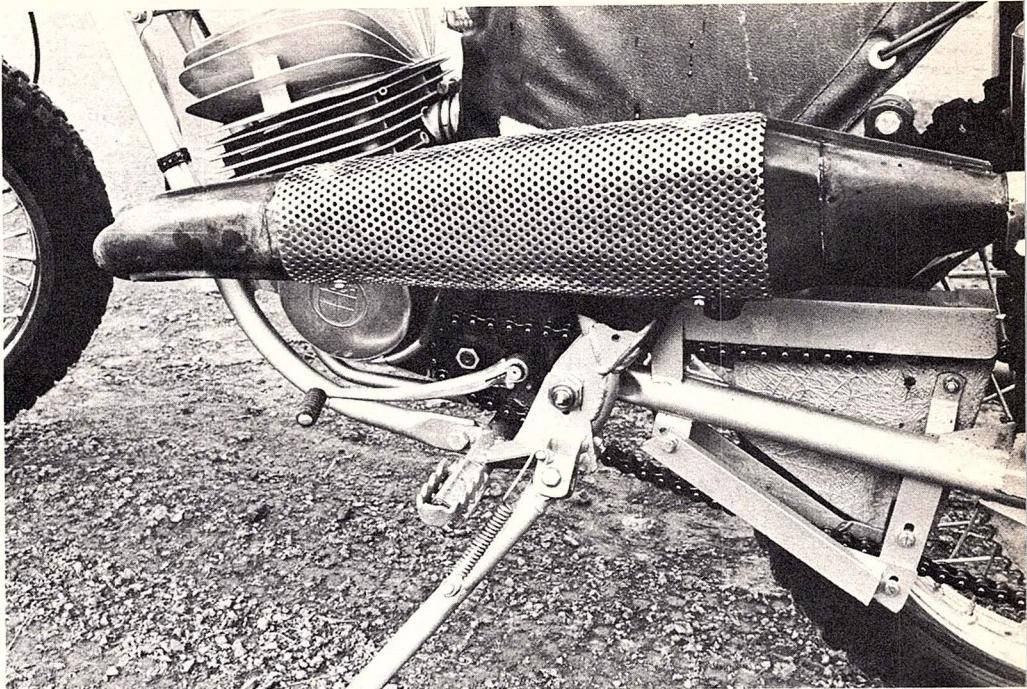
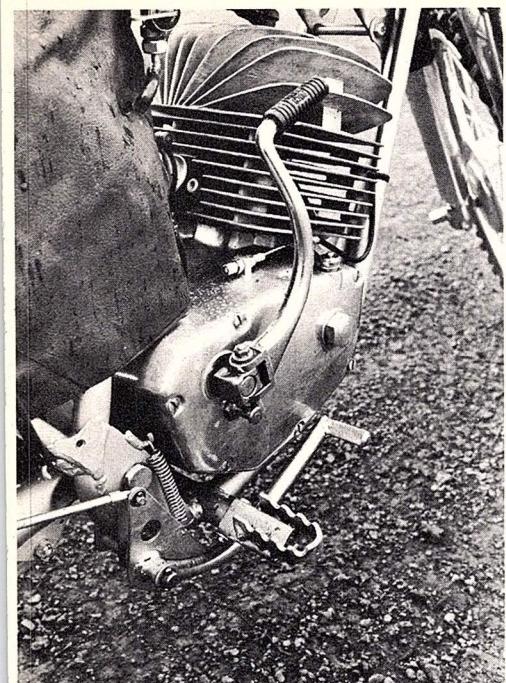
Ignition is a Bosch electronic unit. The charging and timing-signal coils are mounted on a fixed baseplate, and the field magnets are set inside the flywheel. The ignition is strobe timed and the correct and very simple procedure is spelled out in idiot-proof language in the excellent owner's manual.

The built-in advantages of an electronic ignition include spot-on timing all the time, from the point at which it is installed and timed, until at some later date it is removed and reinstalled during major engine work, which seems infrequent with this engine. Because there are no points timing will not alter as the miles are logged. The ignition works extremely well, from starting to maximum revs. The Puch is truly a one-kick bike once the engine is warm, and cold it requires no more than three prods to light it up.

The Puch's frame, beginning at the steering, utilizes a large rectangular-section box tube which terminates at the top of the center frame section. The front tubes bolt to the box at the base of the steering head and arc down beneath the engine. The right tube completes its arc and continues back upward and forward to tie into the rear of the box. The left tube ends in a bolted joint at the footpeg. From there a duplicate of the right tube continues up to tie into the main box. The rear subframe is of smaller diameter tubing than the



TEST:



PUCH M125 MOTOCROSS

mc TEST

PUCH M125
PRICE: \$887.00
WEIGHT: 206 Lbs. Dry
DISTRIBUTOR: HERCULES DISTR. LTD.
9825 Mason Avenue
Chatsworth, California 91306



SPECIFICATIONS

Engine Type	SINGLE-CYLINDER, TWO-STROKE
Bore, mm	55
Stroke, mm	52
Displacement, cc	123.5
Compression Ratio	13.8:1
Bhp at rpm	23 AT 8500
Carburetor	30mm BING
Ignition	TRANSISTORIZED BOSCH
Starting System	KICK
Lubricating System	OIL MIST

DIMENSIONS

Wheelbase, in.	54
Ground clearance, in.	9.646
Peg Height, in.	12
Seat Height, in.	33

CAPACITIES

Fuel, gal.	2.46
Oil, pts.	IN FUEL

IMPRESSIONS	Poor	Good	Excellent
Throttle Response			●
Acceleration	●		
Power Band	●		
Starting		●	
Engine Noise	●		
Muffling		●	
Vibration	●		
Handling	●		
Choice of Tires	●		
Suspension		●	
Rider Comfort		●	
Transmission		●	
Instrumentation	na		
Lighting	na		
Toolkit	na		
Paint and Chrome		●	
Mileage	●		
Braking		●	

front, and is triangulated up to the rear suspension mounts. Additional triangulation is provided for the steering head with a bolted in pair of diagonals that tie the main box into the front down tubes. Normally bolted together frames are hideous affairs, given to flexing, and after long use they become loose at the bolted junctions. Not so the Puch; whatever prompted them to design their frame this way was obviously based on some well thought out engineering. The frame is free of handling-spoiling flexing. It steers precisely, doesn't twitch on bumps, jumps or whoop-de-dos and rockets through berm shots with both wheels tracking true. The swing arm is made of large diameter tubing, cross braced several inches aft of the pivot. The suspension mounts and stiffeners on the swing arm, as well as all the frame gussets, are neat medium-weight stock, and the welding throughout the assembly is of very high quality.

The Puch's front suspension is excellent. The Betor legs, with close to 6 inches of travel, are mounted in massive aluminum forged triple clamps and secured with two Allen bolts both top and bottom. The clamp-to-head mount is doubly secured with a massive top nut that's locked in place with a pinch bolt. A second pinch bolt is used at the bottom of the head. The entire front end is twist free and substantial enough for a much larger motorcycle. The rear suspension units indicate a capacity for nearly 4 inches of travel, and because they are mounted well ahead of the axle the rear wheel enjoys appreciably more movement. We were unable to bottom either front or rear suspension during hard running on the Shadow Glen course at Indian Dunes the day following a race which had left the course in really terrible shape.

Full-width hubs are used on both ends. They're very light for this type of design, due in good part to undercutting of the spoke flanges. Both brakes work well, helped no doubt by the low overall weight. Control feel is light and progressive.

The Puch sports those lovely Magura hand controls with their snug dirt covers, and the foot control levers



ers are nicely detailed to complement them. The relationship of the controls to the pegs is excellent and they are always attainable without hunting.

Riding position, standing up, is comfortable. The kick-start lever tucks in far enough to remain out of contact with the calf, but the exhaust pipe heat shield makes contact with the left boot just above the ankle. Fortunately the shield is large enough to disipate heat well and the condition never reaches the discomfort level. The seated riding position is also good once the plot is underway, but standing height is extreme. The drawback we see here is not that the standing height does anything to hinder the Puch's performance, but it limits its marketability to average-to-tall riders to the exclusion of youngsters and powder puffers. This is particularly sad in

view of the Puch's super competitive price.

In a market of increasingly better looking motorcycles the Puch gets full marks on its appearance. Chrome is used generously, fitting and welding are first rate, and the zany Porsche-type logo on the tank caps off a visually pleasing machine. At the same time the Puch has just enough European racer cobbiness to indicate its true purpose.

Overall the M125 is an excellent small displacement motocrosser. Torque and power characteristics are better than most of its contemporaries, and its handling wants very little sorting out. Backed up as they are by a long history of dependability and enhanced by its price and spares availability, its excellent manners on the race track make the Puch one of the better contenders for those precious dollars. •

TEST: MOTOCROSS

PUCH M125



Delta Junction, the end of the Alaskan miles south of Fairbanks and 340 miles Highway. This spot on the map is 100 north of Anchorage.



BY TOM MASON

alaska -- cross country

I decided to make one more trip on my bike before storing it in the barn for the next 7-8 months (winter). A four or five day round-trip from Rabbit Creek (10 miles south of Anchorage) to Fairbanks would: (1) give me a better "feel" for my new bike; (2) put a couple hundred miles on the bike to finish breaking it in; (3) allow me to get in a couple more nights of camping; (4) let me compare the new Anchorage/Fairbanks highway with the old highway; (5) give me a chance to visit my friends in Fairbanks and Nenana; (6) and, if everything went all right, get me home before the new term started at University of Alaska, Anchorage.

I waited for the rain to stop and then left Rabbit Creek at 3 p.m. on September 7. I drove north on the new Seward Highway to Anchorage and then headed north on the Glenn Highway. From Anchorage to Palmer I cruised at 40 mph behind construction trucks and station wagons. The temperature was a warm 58 degrees and I just relaxed and enjoyed the bright red and gold autumn colors.

**EVERYTHING IS BIG
IN ALASKA --
EVEN A SHORT RIDE!**



Established in 1903 for miners and trappers, the Sourdough Roadhouse still offers a haven for the adventurous.

After Palmer I had the highway to myself and I opened the throttle to a comfortable 70 mph. The highway followed the Matanuska River through the fertile farm valley. After Moose Creek I entered the Alaskan Mountain Range. The Yamaha 350 responded quickly on the climbing winding road. At Gunsight Mountain the temperature dropped to 40 degrees and it started raining. I stopped at the Nenana River Lodge and warmed up with some made clam chowder and four steaming cups of black coffee.

I continued north on the Glenn Highway to Glenallen where I turned onto the Richardson Highway. At Sourdough the sky became cloudy and the temperature dropped to 30 degrees. I decided to call it a day at Sourdough after riding 230 miles. I warmed up at the Sourdough Roadhouse, built in 1903 as a stopover for \$4.00 a night secures lodging in this cabin at the Sourdough Roadhouse. (Linen is not included!)



miners, trappers and dog teams. The cook offered me a small cabin at the Sourdough Lodge for \$4.00 and I accepted.

After a good sleep I prepared to continue my trip to Fairbanks. The temperature at 8 a.m. was 35 degrees and a heavy mist/fog darkened the sky. I checked the tires for cuts, added a quart of oil, greased the chain and inspected the rest of the bike. At Paxson Lake the sun suddenly split the clouds and the temperature rose to 40 degrees. At Black Rapids I saw a herd of moose and many fox and rabbits. A grizzly bear and her two cubs crossed the road in front of me and stared curiously as I passed.

I ate lunch at Big Delta and then continued through the Alaskan Range on the Alaskan-Richardson Highway to Fairbanks. At 2 p.m. I ran out of gas five miles from Fairbanks! Two hunters in a Jeep gave me a gallon of gas and I arrived in Fairbanks at 3 p.m.

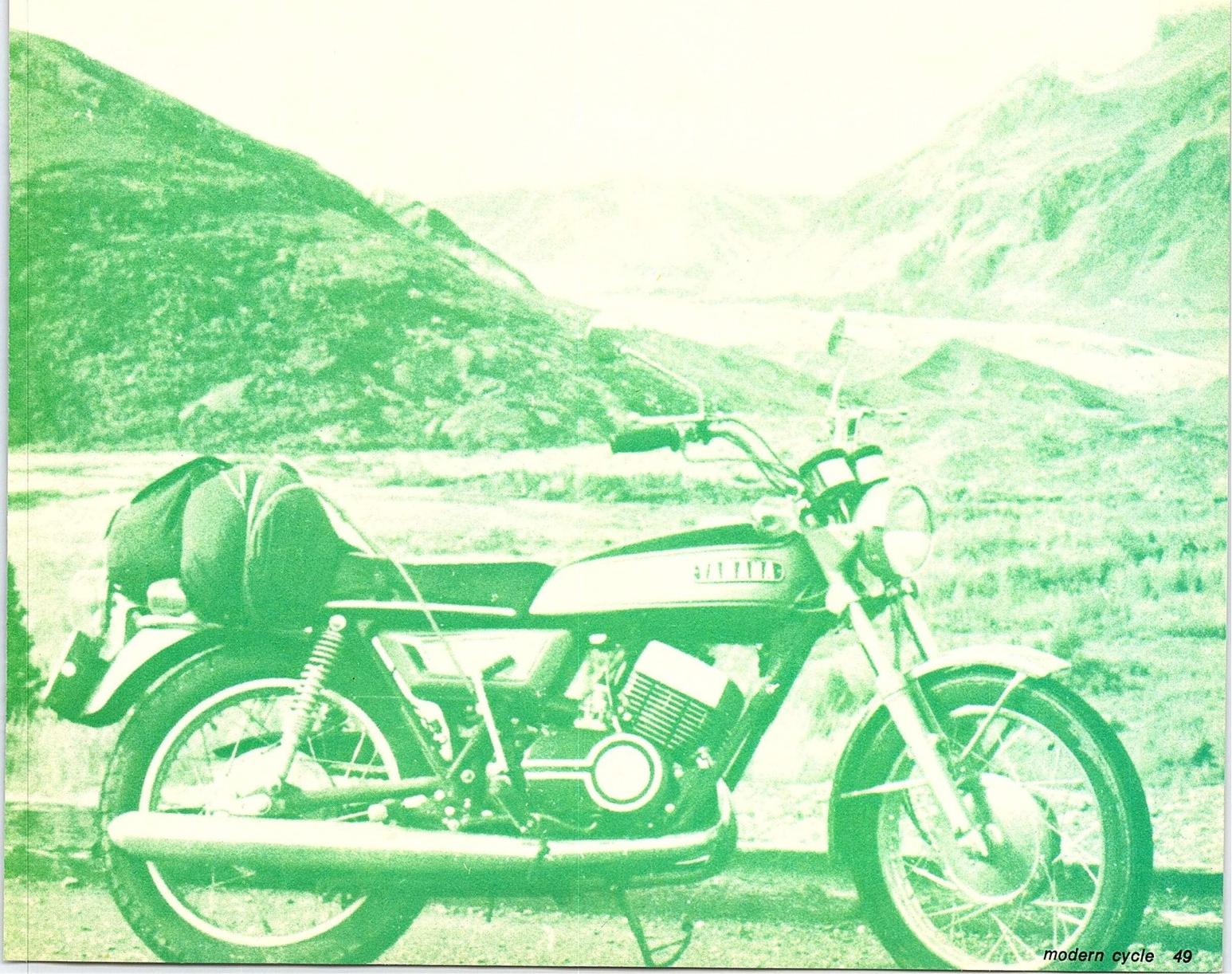
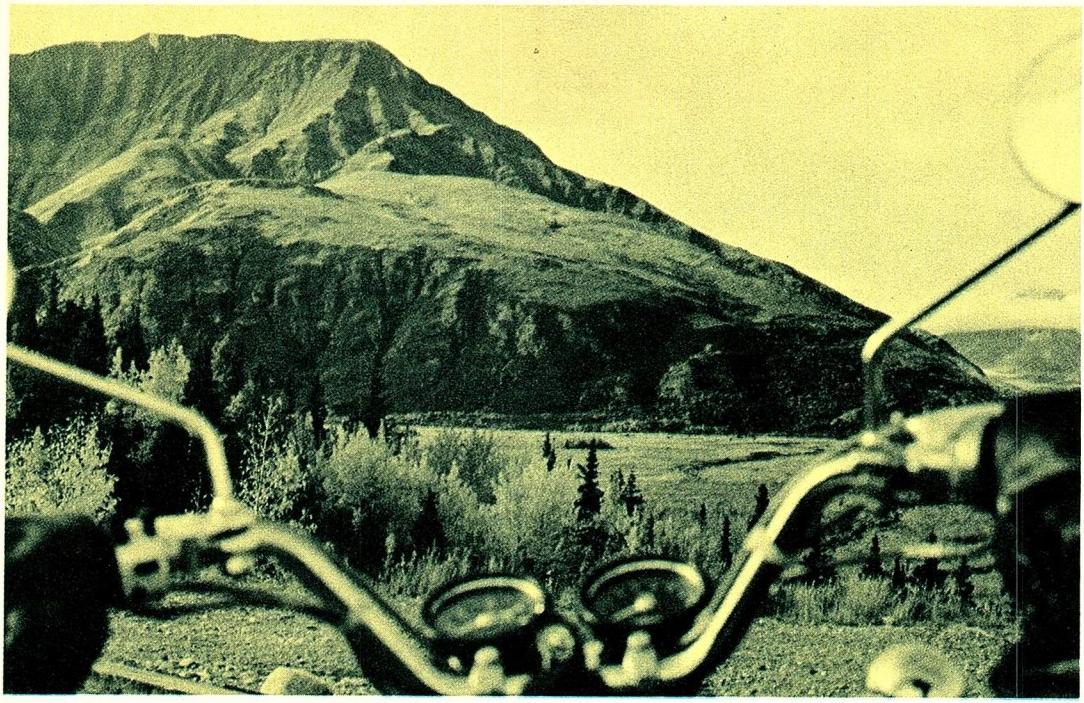
The Yamaha 350 had handled the 450 miles from Rabbit Creek to Fairbanks without a whimper. Through valleys, over mountains, across rivers, on dirt, gravel, mud and paved highways the bike never failed to respond to my needs. The only maintenance the bike required was to add oil, grease the chain and add air to the tires.

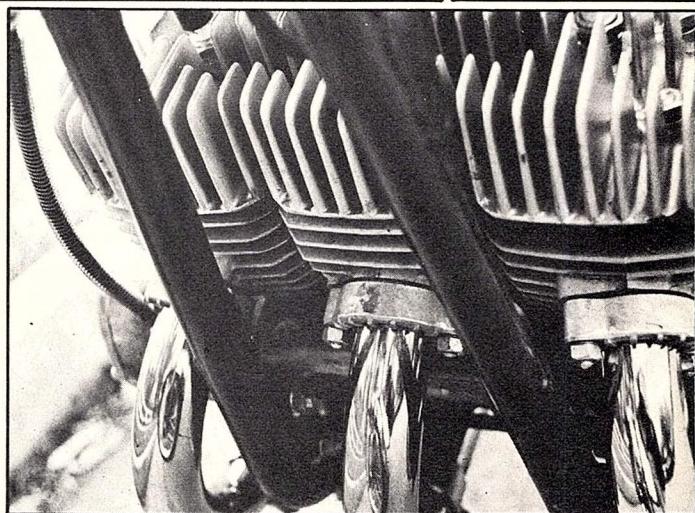
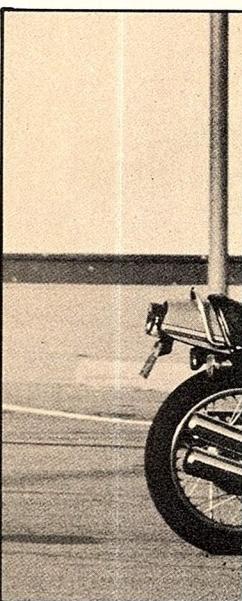
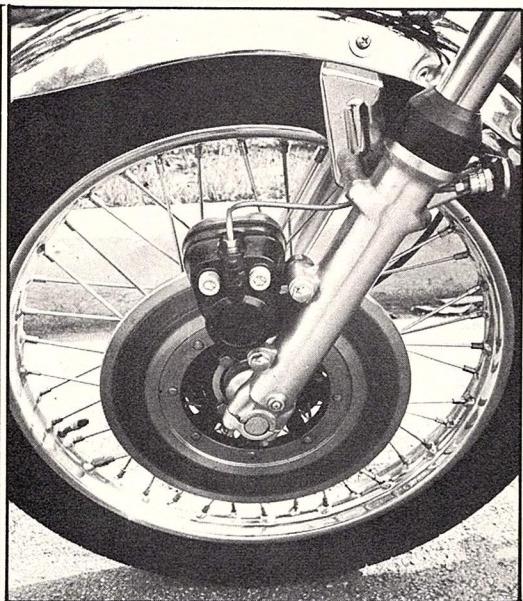
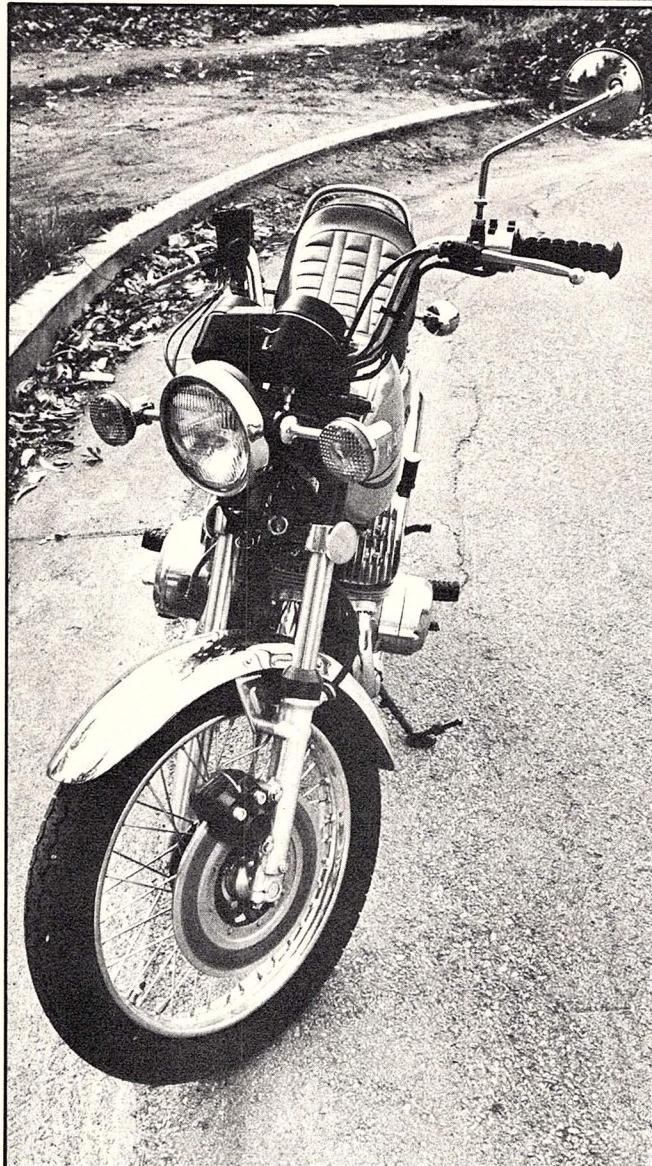
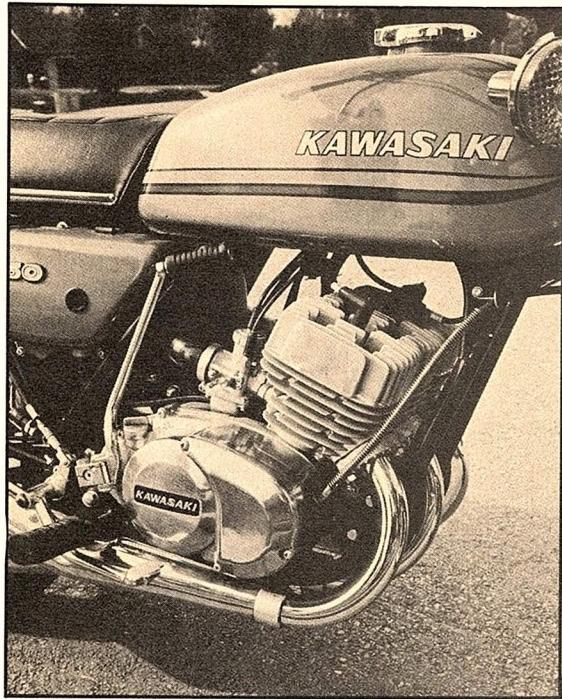
After two days in Fairbanks I began the return trip to Anchorage and Rabbit Creek. I questioned motorists regarding the condition of the new Anchorage/Fairbanks highway and was told it was "beautiful," "impossible," "better than the old road," "worse than the old road." I decided I had to find out for myself.

I stopped in the old gold rush town of Nenana (sixty miles south of Fairbanks) and visited friends before continuing along the new highway to Mt. McKinley Park. In Mt. McKinley I ran into a choppy mud/gravel section of the new highway and had to drive at 10 mph. The bad section of road was twenty miles long, but after that the new road was an enjoyable 70 mph all the way to Montana Creek, Bike Lake, Wasilla and Anchorage. The old highway from Anchorage to Fairbanks had taken me two days; the new highway took me ten easy hours.

I checked my speedometer when I pulled into my cabin on Rabbit Creek and was surprised to note my "little trip up the highway" had covered 1,150 miles! The Yamaha 350 responded to every need on the trip and performed with the speed and endurance of a bigger bike. I was very satisfied with its performance and look forward to more "overnight" trips next summer. •

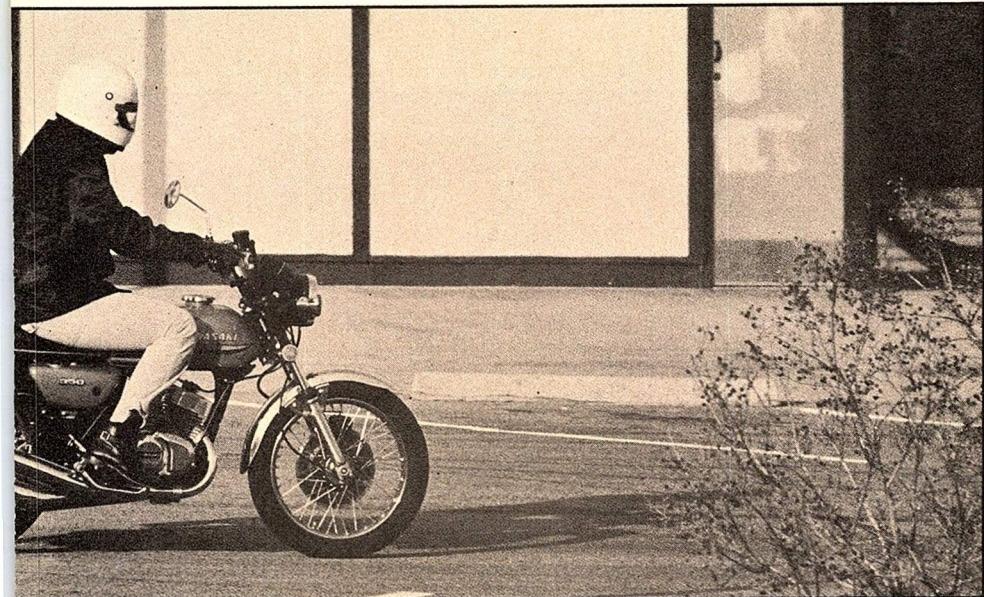






SON OF SUPERBIKE HAS ALL T

TEST: KAWASAKI



S-2 350

four and, somewhat overshadowed, another three—a 250. Aside from the big new four Kawasaki seems to have all the roadster bases covered with their full lineup of triples. And we still haven't caught up with road testing them.

Previously **Modern Cycle** tested the 500 and just last year the 750. What with all the other strange and wonderful products on the market we weren't able to work the 350 in, until now, and we're quite happy that we waited because it's considerably improved over the earlier one and fits into what we believe will be an interesting project for this

year. More on that later.

The 350, like the two larger triples, is a piston port design constructed with Kawasaki's standard horizontally split crankcase scheme. Despite being a total scale down from the larger engines the 350 enjoys a stout lower end that appears as though it would handle a great deal more displacement. The crankcase is heavily webbed and the crank assembly is set in generous ball bearing mains. Rollers on the big end and needles at the wrist pins neatly tie the reciprocating machinery together. Injection lubrication is employed with progressive, demand metering that produces oil smoke only at startup; when the engine is warmed to operating temperature the exhaust is acceptably clean with exhaust residue at the muffler exits minimal.

The intake tract consists of three Mikunis mounted on short manifolds. The carburetors connect to the air box through a triplex hose arrangement. Low speed intake velocities are apparently brisk; the engine pulls extremely well off the bottom end for its size. And if one chooses to wind it past 6000 in low and second it really begins to work, almost automatically aviating the front wheel as it gets its second wind. This bit of sport is never missed, however, if gear changes in the lower cogs are made before 6000; the engine is still impressively strong.

Intake and exhaust noise are very low and pleasantly throaty—on a small scale. The noise is well within current standards and the engine really has to be on the boil to be heard 100 yards away. The ignition is a conventional pointed type which works well throughout the engine's 9000 rpm range. While an electronic ignition might be hoped for it seems to be of little benefit.

The 350's gearbox is smooth, precise and with well chosen ratios. Selector movement is light and short and neutral is instantly acquired.

Like the engine, the 350's chassis is a scale down of the larger units. A full double cradle number, the main frame feels less flexible than that of the 500. To be sure, the torque of the 350 is considerably

THE MAGIC OF THE MACH III -- IN 4/5 SCALE

less than that of the 500, and too, the shorter chassis offers less mechanical advantage for twisting the swing arm out of alignment.

The front suspension uses Kawasaki's Hatta pattern fork legs, again scaled down from the larger units. The forks damp well in both directions and offer more than adequate travel for road use. They offer the advantage of chassis tuning through standing height adjustment in the triple clamps. The rear suspension units respond nicely and enjoy better than average damping for Japanese made shocks, although some of this must be attributed to the motorcycle's relatively low weight.

We're pleased that Kawasaki has graced the 350 with a disc brake on the front wheel. The brake offers a wide margin of stopping power with excellent control and feel. Puck life should be long, again because of the weight or lack of it. The brake is

quieter than most discs on the market and would indicate that Kawasaki has cured the chattered problem that plagued them in the past. The rear brake, a pedestrian drum effort, also evidences a good deal of stopping strength. It too has excellent control and feel. In combination, during maximum effort stops, the brakes scrub the little whistler down to a walk in less time than it takes to tell about it.

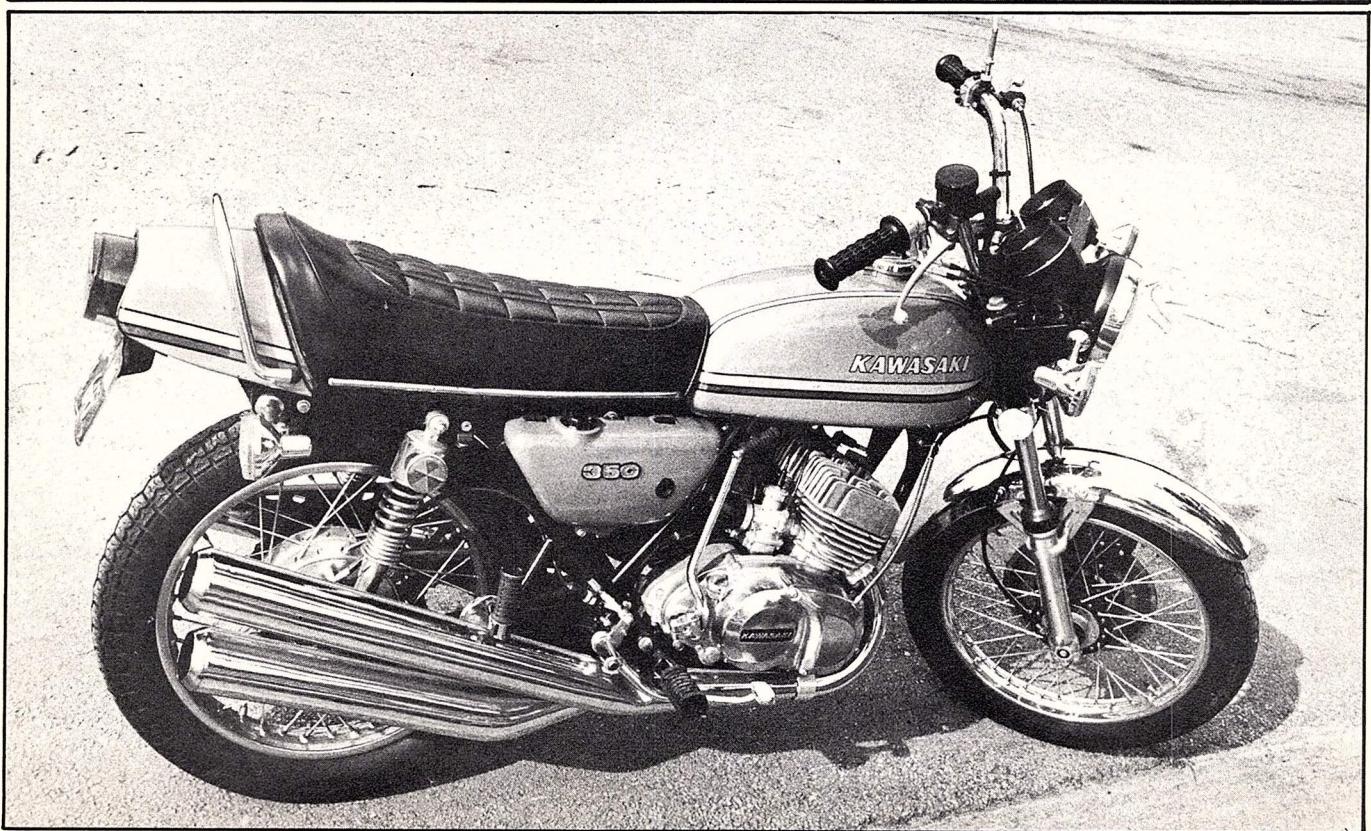
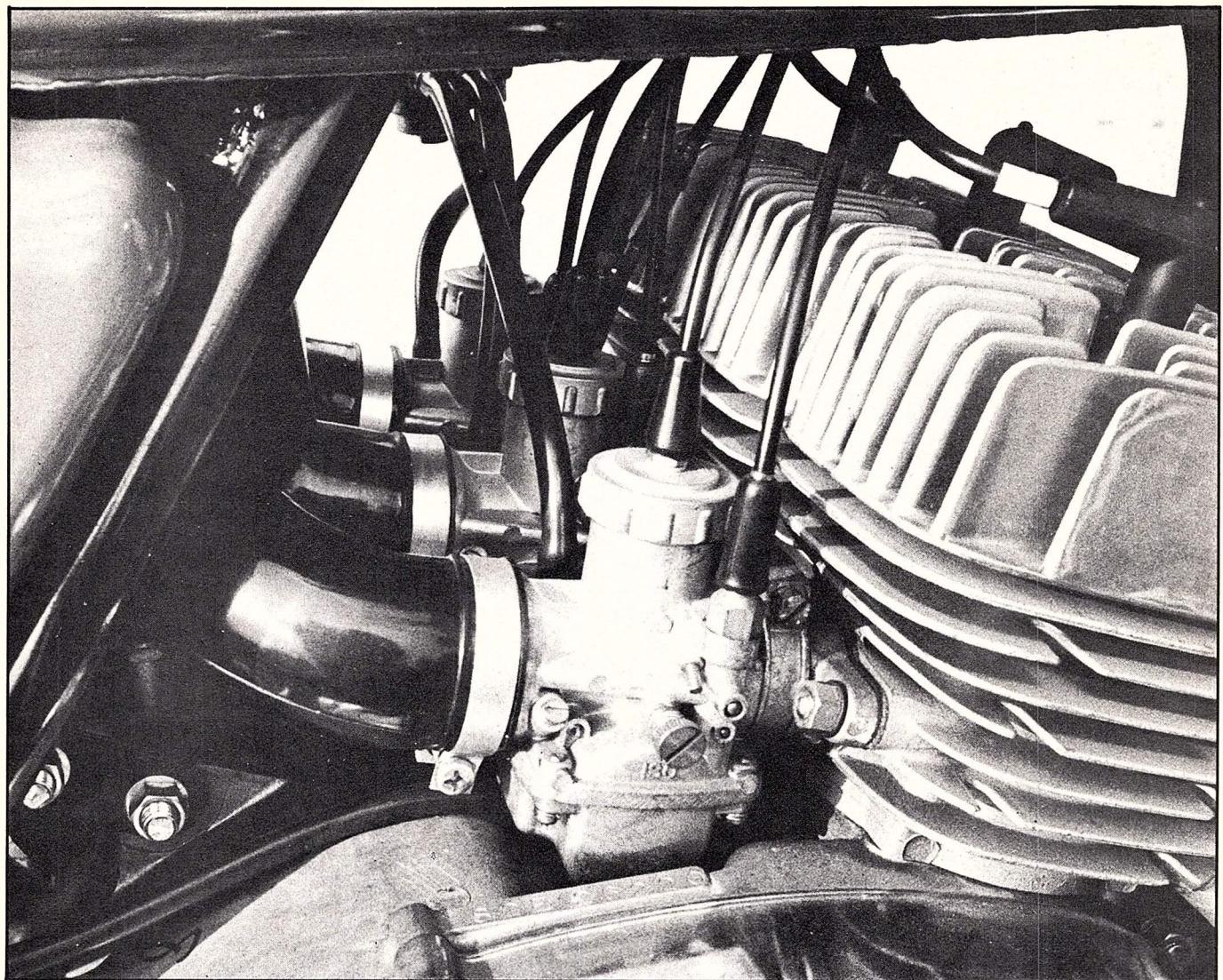
The 350's electrical system adequately handles the demands of all those wonderous lights. The tail and stop lights are comfortably bright and the unit is one of the better design solutions, integrated neatly into the Kamm-type tail. The headlight is likewise a nice piece of packaging, very efficient looking. The nacelle is found throughout Kawasaki's line and is certain to be popular with cafe racer builders. Its focused beam is acceptably bright, and

the unit is circuited with a high-beam flasher connected to the dipper switch. All of the lighting controls are readily accessible with no extra hand movements required.

The little Kaw's instrumentation is nicely positioned, in full view even when a full coverage helmet is worn. The indicator lights are bright and can be seen in daylight. The speedometer reads surprisingly close to true speed, and the tachometer responds as though it really is connected to the engine.

Rider comfort is exceptionally good, even for larger than average bods. Despite being a triple the engine is quite narrow and provides a natural leg spread. Peg-to-pedal distances offer an instant homey feeling. The level and angle of the handlebars are well done, requiring no stretching or twisting of the wrists. Unfortunately, like the bars on Honda's 350 Four, the Kawasaki

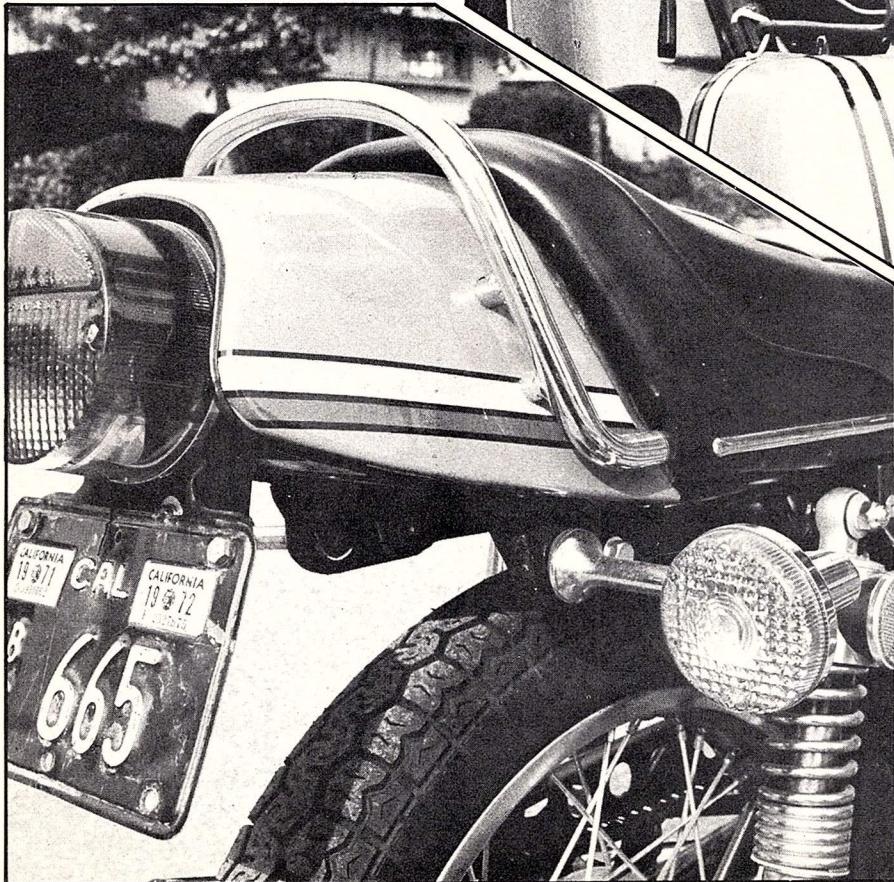
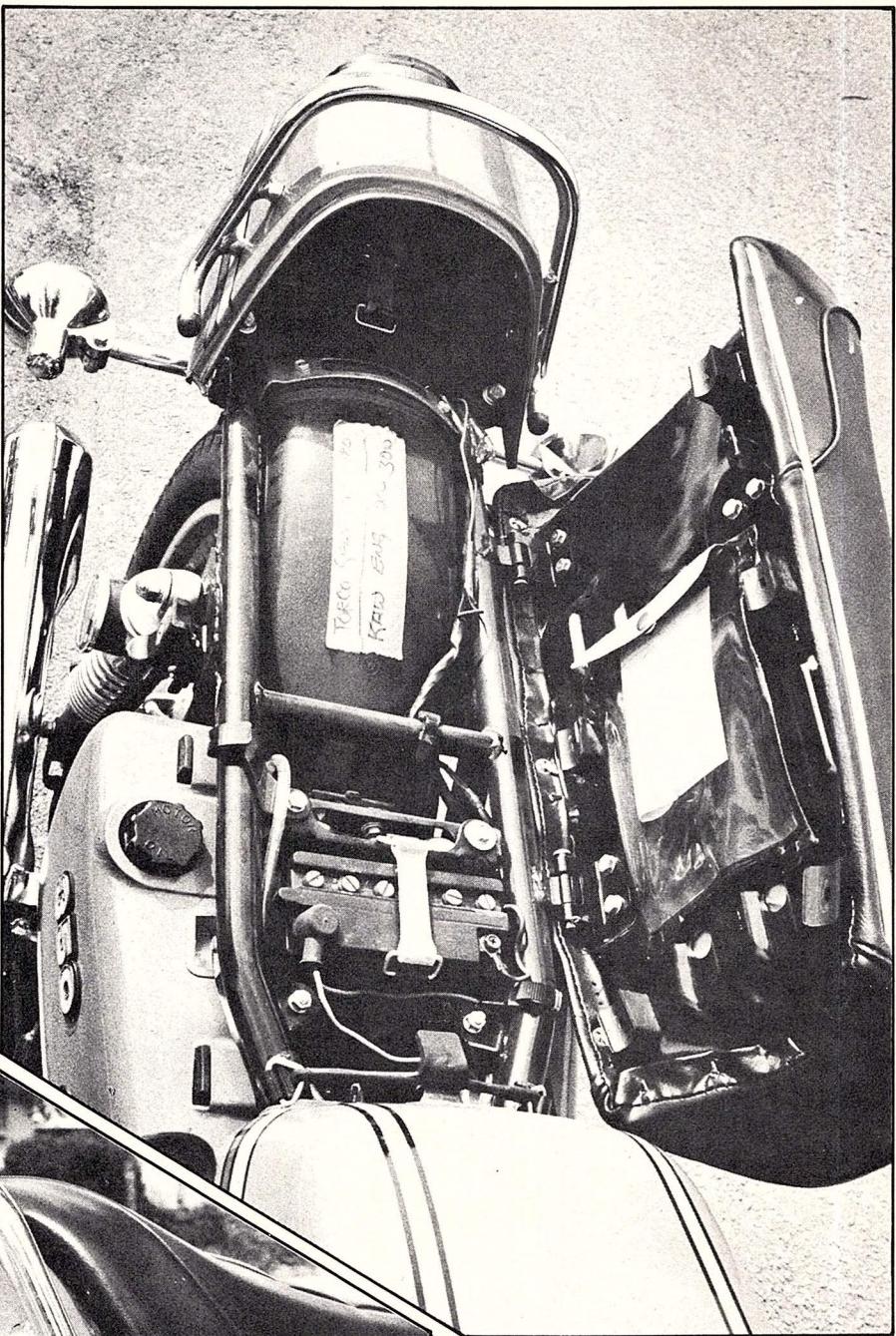




units are homely and spoil the otherwise overall excellent scale of the motorcycle. Two-up riding—with the inevitable qualification—for a 350 is comfortable for rider and passenger alike. The passenger pegs are well placed on auxiliary loops which invite the installation of a pair of rearsets for the pavement scratchers.

With the exception of the bars and a hideous front fender the 350's styling is super. Just as we defended the shape of the bars we must also defend the fender in that it offers really good protection from water. Perhaps if it were painted rather than plated it wouldn't be such an eyesore. The sporty Kammback houses the tool box with room enough left over to accommodate a camera, or a lunch bag, or a change of underwear, depending upon your mission. As an urban transport the Kawasaki 350 is a pleasant, spirited piece that breezes nimbly through traffic. It gets underway with no fuss and doesn't require throttle blipping to keep it running clean. It motors contentedly along on surface streets in third and fourth without losing its edge.

On the highway the Kawasaki's displacement exacts its inevitable toll and makes it a little small for serious long-distance touring for anyone of average or larger size. However, if one is willing to exchange the instant torque of the big fellows for a little patience, and accept the bonus of outstandingly

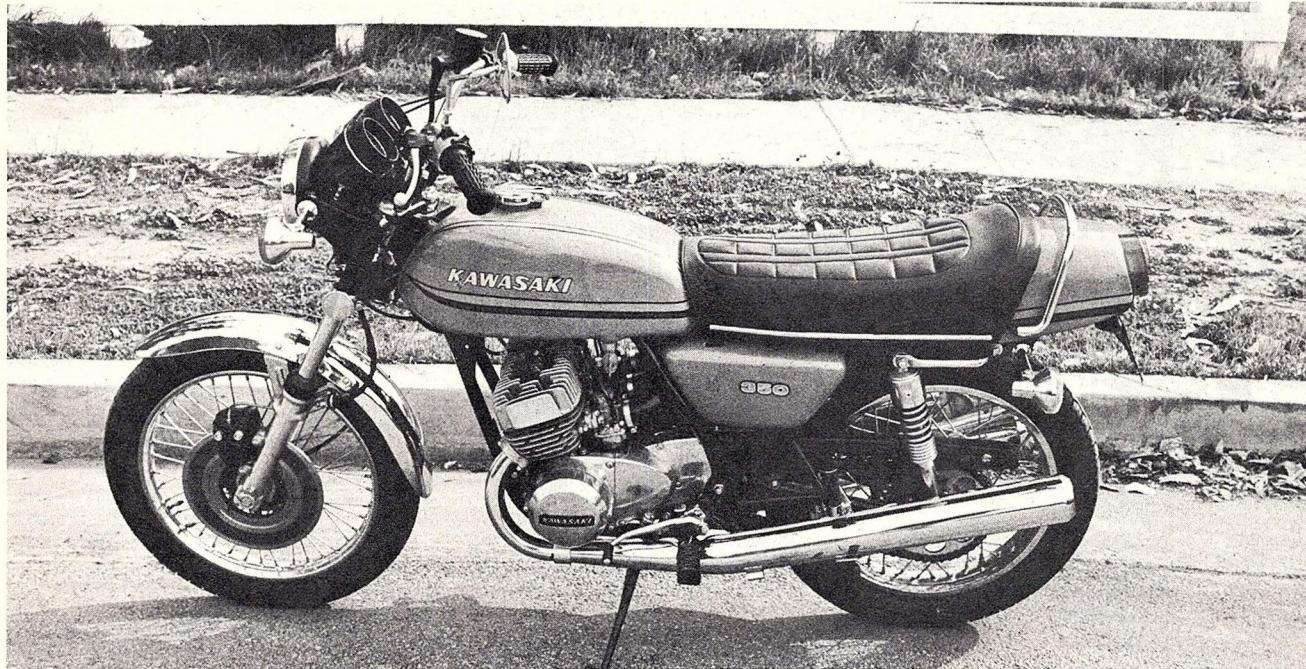


nimble handling the Kawasaki 350 is more than adequate for a traveling companion.

In our final tally we rate the Kawasaki quite high. It's a well sorted out little motorcycle that is at once quite friendly and docile and yet always ready to offer some scaled down racer-like thrills with very little urging. With its inherent mechanical simplicity and robust rolling pieces it's perhaps very close to being bulletproof. We like it so much, in fact, that we're going to keep it, ride it like it is for awhile, and then use it as the basis for an upcoming project bike, a maximum effort GP class racer in street-legal trappings. Already the details are being worked out and the goodies gathered. Be sure to watch for it at a race track or Diary Queen nearby. ●

mc TEST

KAWASAKI S-2
PRICE: \$885.00
WEIGHT: 335 Lbs. Dry
DISTRIBUTOR: KAWASAKI MOTORS CORP
1062 McGaw Avenue
Santa Ana, California 92705



SPECIFICATIONS

Engine Type	THREE-CYLINDER, TWO-STROKE
Bore, mm	53.0
Stroke, mm	52.3
Displacement, cc	346.2
Compression Ratio	7.3:1
Bhp at rpm	44 AT 8000
Carburetor	(3) VSC 28mm MIKUNIS
Ignition	BATTERY AND COIL
Starting System	KICK
Lubricating System	INJECTION

DIMENSIONS

Wheelbase, in.	52.5
Ground Clearance, in.	6.5
Peg Height, in.	13.0
Seat Height, in.	32.0

CAPACITIES

Fuel, gal.	3.7
Oil, qts.	1.6

IMPRESSIONS	Poor	Good	Excellent
Throttle Response			●
Acceleration	●		
Power Band	●		
Starting		●	
Engine Noise		●	
Muffling		●	
Vibration		●	
Handling	●		
Choice of Tires		●	
Suspension	●		
Rider Comfort	●		
Transmission		●	
Instrumentation		●	
Lighting		●	
Toolkit	●		
Paint and Chrome		●	
Mileage	●		
Braking		●	

world mini grand prix



ABSOLUTELY FANTASTIC!

Close to six hundred competitors were on hand for the weekend. Riders from fifteen states had traveled to Southern California for the action. The track had been treated and manicured until it was near perfect. Colorful ribbon lined the edges of the course and banners festooned the snow fencing. The whole atmosphere was charged with color and excitement.

Was it a big-point AMA National? Had the Europeans returned for one of the big money motocross races? No, friend, it was a race for kiddies! It was billed as The World Mini Grand Prix, and the people (more like one person) who put it together produced a racing spectacular that would be the envy of any promoter in the country.

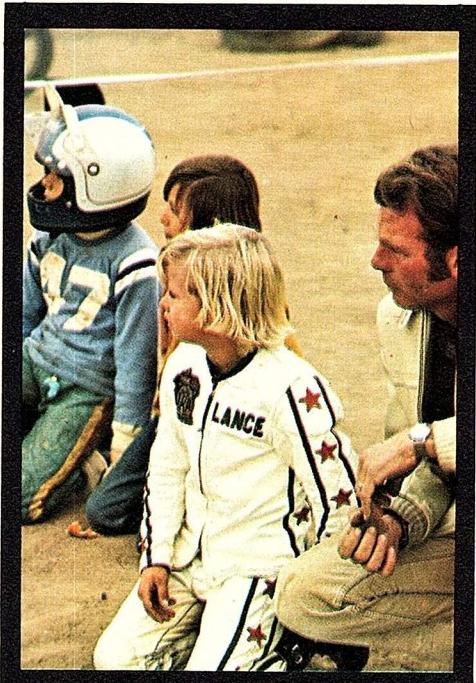
The weekend's activities were put on by an organization known as the National MiniCycle Association. While the name gives the NMA the sound of a heavy group, it is essentially just one man. Ron Hendrickson, who is employed in the aerospace industry, is a super enthusiastic guy who puts

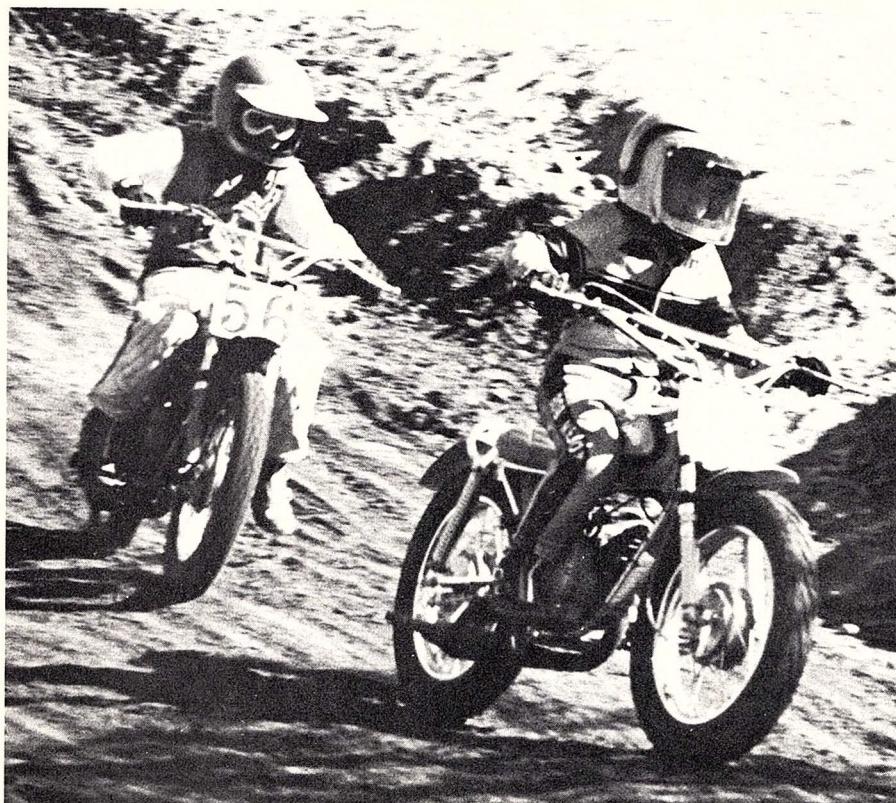
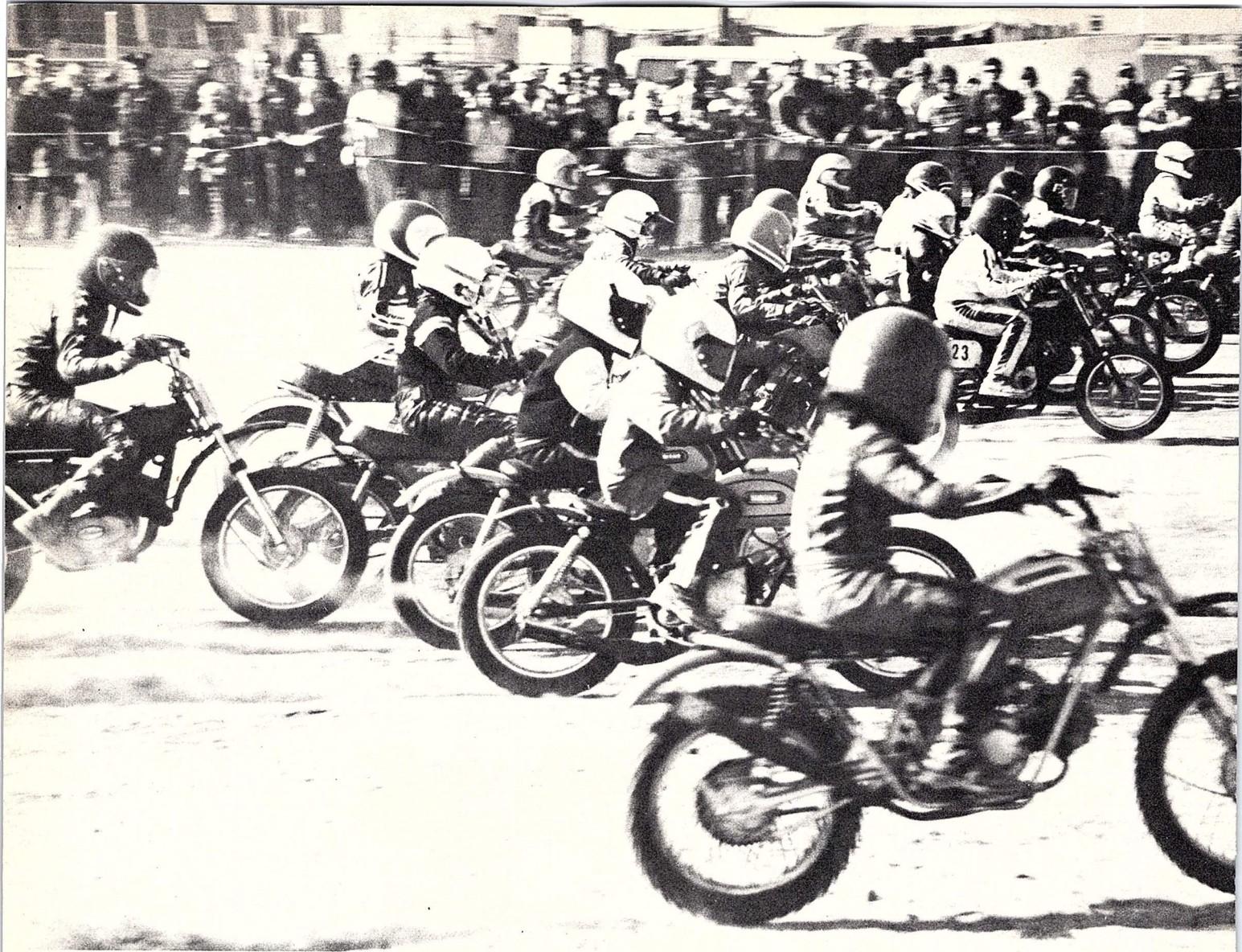
on mini-cycle races on a weekly basis in the Southern California area. Once a year, Ron decides to put on his World Mini Grand Prix. This decision means that Ron has about three months of Herculean labor ahead of him. In addition to his full-time job, Hendrickson takes on enough work to put ten men in the funny farm.

What's truly remarkable about this situation is that, somehow, Ron manages to maintain his enthusiasm and sense of humor. And, it shows! Naturally, the kids are keyed up for the big weekend, but, by and large, they remain what a bunch of youngsters should be: happy. None of the "little league syndrome" is apparent; no frozen-faced little robots with do-or-die determination here. It's this lack of pressure that makes the event come off as well as it does.

The International course at Indian Dunes Park is a combination of tight twisting turns and jump interrupted straights that is a demanding test of full-sized motocross machinery. Oddly enough, this track proved to be just about ideal for the mini racers. The short wheelbase machines didn't have much trouble making it through the tight turns. Of course, the jumps did test the lightweight suspension to the utmost.

The International course at the Dunes is in almost constant use (either practice or racing) and it normally has some pretty well developed ruts and grooves. The park management closed the track on the Friday before the Grand Prix, and the entire day was devoted to groom-





ing the track to make it acceptable for the small racers. All the work paid off; by Saturday morning the track was near perfect. The plan for the course was to use the full track for the mini-cycles, and a short course for the mini-bikes. It seemed to be a fair arrangement; most of the mini-bikes didn't have the horsepower to do much on the long straights anyway.

A tremendous amount of activity was planned for the weekend. The mini-bikes would run in four classes: Pee Wee, 0 to 3.9 horsepower, 4.0 to 6.9 horsepower, and 7.0 horsepower and over. The mini-cycle would contest three classes: 0 to 75cc Stock, 0 to 75cc Modified, and 76 to 120cc modified. Further class breakdowns were determined by the ages of the riders. All in all, something like one hundred races would be run during the two days!

Saturday was devoted to sign-up, practice and semi-final races. The quality of the machinery on hand was amazing. All the bikes were spotless and obviously well prepared. A lot of very expensive, trick



have the effect of turning the races into Trophy Dashes; those who got off the line in front usually held their lead to the finish.

By and large, those who were expected to do well did well. Jackie Irons, out from Michigan to ride for Chaparral, turned in an impressive set of rides. Chad McQueen, riding his new Honda XR-75, put together three firsts for a well deserved class win. (Chad was suffering from the flu, and there was some doubt wheth-

er he'd be able to ride at all.)

After their impressive victories in the Winternationals, held in Florida recently, the California riders were confident that they could put it on the out-of-state riders. The locals quickly found out that a racer is a racer regardless of where he comes from. Because of sheer numbers, the California riders posted the greatest number of wins. But, in the really

(Text continued on page 72)

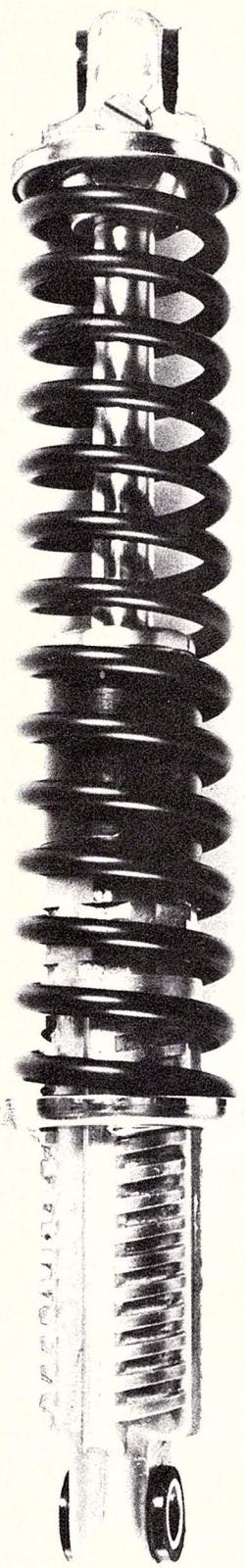
stuff was evident. Custom built frames, spool hubs, disc brakes; these were just a few of the exotic components seen in the pits.

Practice and sign-up took more time than anticipated. Things got off to a late start, and it had its effect on the whole weekend. As the day wore on it became obvious that not all of the scheduled events would be run before darkness set in. The remaining races were rescheduled for the first thing Sunday morning. Unfortunately, this was not to be.

Southern California was suffering one of its rare cold spells, with temperatures falling to the mid-30's during the night. Returning to the track bright and early on the cold Sunday morning we found that the chill had gotten to the suspension on the racers; forks would barely move and rear ends felt like they were rigid. Also, it was necessary to wait around while several icy patches on the track thawed out. Bummer!

In order to get all the races run it was necessary to cut them from five to three laps. While this was the only solution to the problem it did





Weighing but 2.25 pounds apiece the Arnaco shocks are the lightest currently available. The shocks are available for almost all popular machines, they are easily rebuildable and replacement components are relatively inexpensive.

PRODUCT EVALUATION: ARNACO'S 2ND SUSPENSION

OUTSTANDING DESIGN AND ENGINEERING PRODUCES ONE OF THE BEST SHOCKS CURRENTLY AVAILABLE

When you get right down to the nitty-gritty and past any debate about awesome engine power or ultra-light frames, the single most important feature on a competition motorcycle is its handling. A heads-up tuner can get a motocross engine to produce tremendous power, but unless the machine in which it sits handles the whole effort will be in vain. The poor rider of this machine will probably end up on his head more frequently than in the winner's circle. The same holds true in road racing. Road racing bikes already produce awesome amounts of power. A good frame designer can give his all to build the ultimate road racing frame. Unfortunately, if this hypothetical screamer lacks good handling all of the work will have been for nothing. In racing, whether it be dirt or road, handling is truly the name of the game.

For a bike to handle well it must have a good chassis. Good handling, however, begins with good suspension. You can put together the best bike in the world and if it isn't suspended properly it won't work. When it comes to suspension most motorcycles, be they off-rovers or street bikes, resemble peas in a pod. The front end of the machine will feature telescopic forks, usually with the springs carried internally and the upper halves of the legs exposed. Almost all shock absorbers on the rear of the machines have the same air of similarity. If you didn't know better, you might think that there was no need for further develop-

ment in the area of motorcycle suspension. To a certain extent this is true; front suspension, thanks to people like Ceriani and Betor, has been developed to a very high degree. Unfortunately, the same cannot be said for the rear suspension offered on most motorcycles. An indication of the truth of this statement can be gained by examining the photos which appeared in **Modern Cycle's** report on the Suzuki Grand Prix motocross machines which appeared in the March, 1973 issue. Five distinctly different types of shock absorbers were being tested and, we were told, none of them were really doing the job.

It now appears that a breakthrough has finally been made in the design and construction of shock absorbers designed for motorcycles. The new shocks are called 2ND Suspension (a trick way of saying that they can be tuned), and they are the product of Arnaco of Chatsworth, California. The principals of Arnaco are men who received their training and tempering in the sophisticated aerospace industry. When aerospace activities began to dry up in California these gentlemen were forced to seek other sources of income. One of the men, John Thompson, Arnaco design applications engineer, was an enthusiastic weekend cow-trailer. And, more important, he was aware of the inadequacies of most of the shock absorbers currently on the market. Fortunately, one of Thompson's activities in the aerospace field had been the designing of hydraulic shock absorbing units for the Apollo space program.

Thompson convinced his colleagues that there was indeed a market for quality shock absorbers, and Arnaco came into existence.

The logical first step in designing a totally new shock absorber was

to determine the shortcomings of those already in existence and try to avoid them. A list of goals to be sought and pitfalls to be avoided was made up and work began.

The people at Arnaco made a list of the failings common to most shock absorbers and then set out to avoid these shortcomings. Probably the most single important deficiency in most shock absorbers is an inconsistency in performance. Damping will function in a certain manner when the shocks are cold, and then change rather radically as heat build-up warms the internal components of **Internal damping of the shock can be varied by means of this external slotted cam device. Seven distinct settings alter the damping from soft to firm.**

original characteristics. This, naturally, has a very noticeable effect on rear suspension.

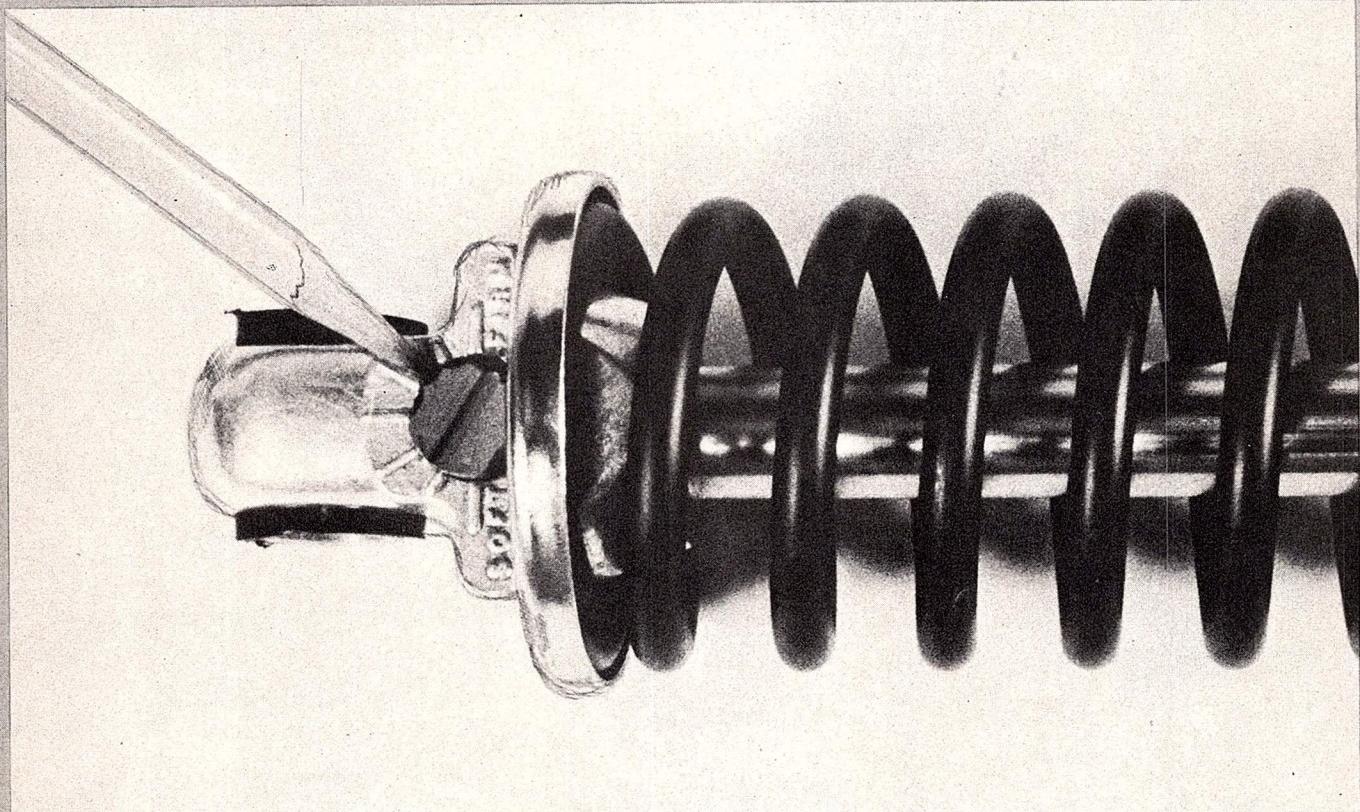
Other drawbacks found on many shocks now on the market include: seals that tend to blow after only a short period of use, bottoming and topping when the shocks reach full compression or full extension, inconsistent damping and, in some cases, shafts which are easily bent. These were just some of the drawbacks that Arnaco hoped to avoid when they set out to build a better shock absorber.

Design and engineering of the shocks were done in a step-by-step manner. Each problem area was carefully examined, and a solution to the problem was created. As the

hold the spring retaining lock-ring. Fourteen settings are available in quarter-inch increments, enabling the rider to pre-load the spring for any application. Rotation of the slotted adjuster at the top of the unit moves a needle valve, which closes or opens the flow area between the upper and lower chambers of the shock. This adjustment ranges through seven settings from soft to firm. Damping performance can be altered to suit the requirements for various types of terrain and riding styles.

So much for the internal adjustments of the 2ND Suspension.

Internally, the Arnaco shocks work in the following manner. On the down-stroke (when the rear end is

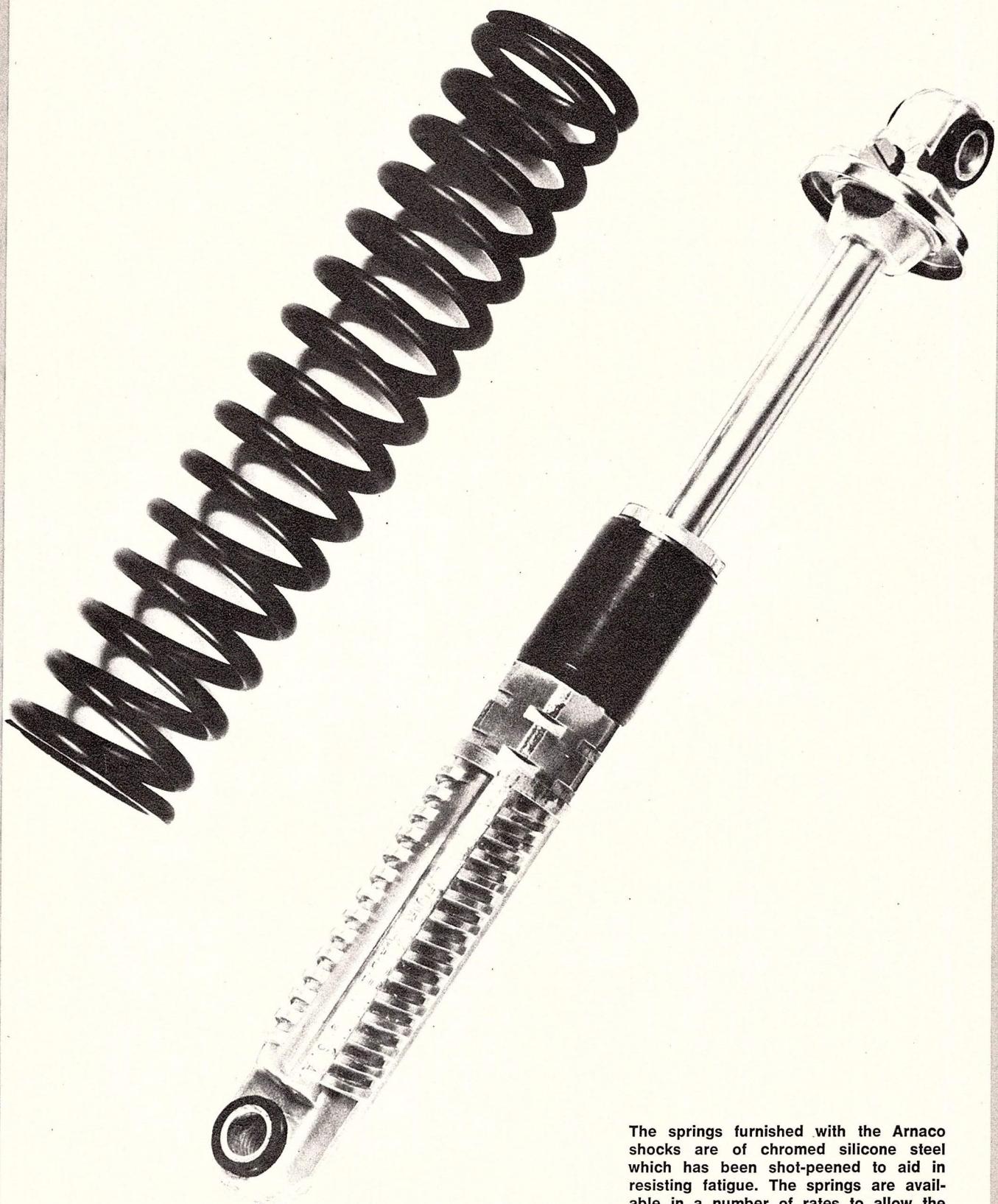


the shock. The other two most common, and most distressing, characteristics of shocks currently available are the phenomenon known as pump down or packing and spring sacking. Pump down occurs when a bike is ridden hard over a washboard surface. Because of the rapidity of the bumps the suspension compresses by degrees, without enough time to return to extension. In a very short distance the shocks can pack all the way down and you end up with a rigid rear end. Sacking is a word used to describe spring fatigue, which in itself should be self-explanatory. The constant abuse brought about by hard off-road riding can quickly reduce a set of 100-pound springs to something less than their

basic design characteristics for the shocks began to be locked-in a small number of the units were released to a select group of riders (including our own Dave Ekins) for testing and evaluation in the field. Feedback from this group of riders indicated that certain minor changes were still required, but the shocks were close to idea. The asked-for changes were made, and the Arnaco 2ND Suspension units are now available to the buying public.

Certainly the most noticeable external features of the 2ND Suspension units are the method of pre-loading the springs and the adjustment screw at the top of each unit. What appear to be cooling fins on the body of the shock are actually grooves to

compressed) the damping liquid passes from the lower to the upper chamber of the body. The upper chamber contains a carefully measured amount of air which is mixed into the liquid as it enters the upper chamber. This controlled aeration provides additional cushioning. On the up-stroke (when the rear end returns to normal position) the aerated liquid, now less dense, runs through the orifices more easily and thus allows a more rapid up-stroke. Naturally, this allows the wheel to contact the ground faster than it would with a conventional shock. Because of this, the wheel is in more constant contact with the ground, with a resultant improvement in both handling and traction. Arnaco calls this "50-



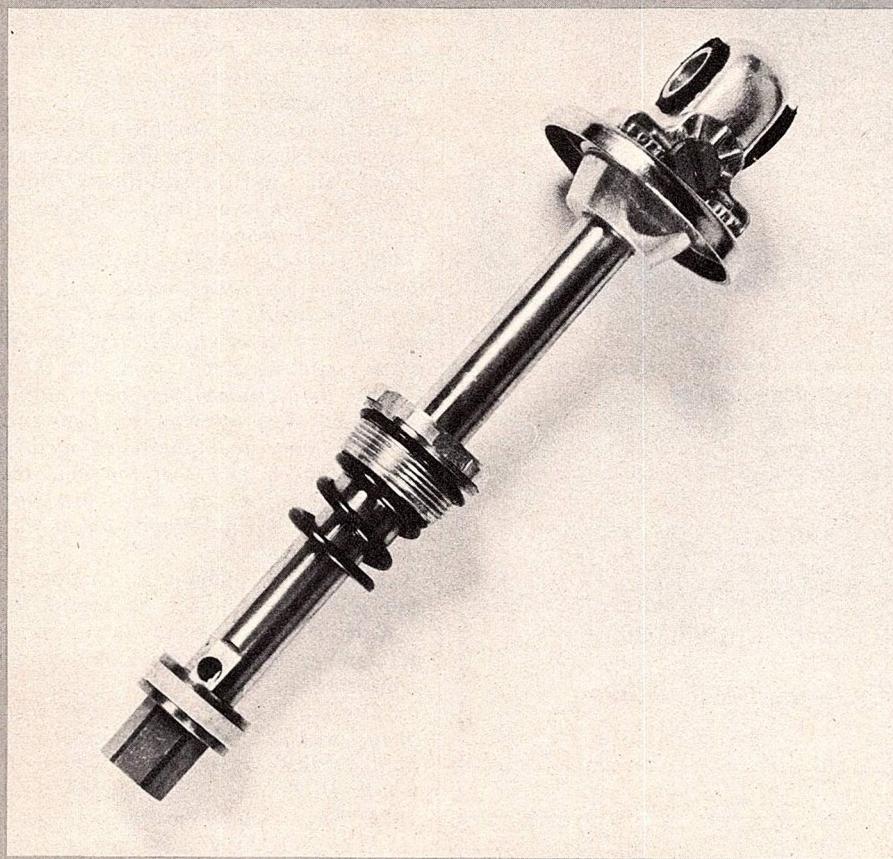
The springs furnished with the Arnaco shocks are of chromed silicone steel which has been shot-peened to aid in resisting fatigue. The springs are available in a number of rates to allow the individual rider to set up his suspension to suit his own needs.

The body of the shock is of lightweight aluminum alloy. Interior is honed to provide an exceptionally smooth surface. The "fins" on the exterior of the body are actually locating slots for the spring retaining washer. However, the grooves and ridges do seem to aid in cooling the unit.

50" action, and it is the characteristic of the unit that prevents pump down or packing.

Examining the Arnaco shock from top to bottom we find a tremendous amount of quality and some innovative design features. The tubular shaft is 9/16-inch in diameter, it is hardened and ground, with dense chrome plating to provide long life. This shaft is larger than those found on any other motorcycle shock absorber, and the fact that it is hollow makes it stronger than a comparable rod of solid construction. A nylon spring guide, around the upper shock body, eliminates spring buckling and reduces noise. Internally, a Teflon piston wear ring eliminates cylinder galling and provides smooth action. The lightweight valve assembly (heart of the "50-50" damping system) is not sensitive to gravity, and it is guided to prevent cocking.

The body of the shock is a lightweight, high density cylinder of large diameter to provide a greater liquid reservoir and a larger radiating area.



The damping rod in the Arnaco shock is 9/16 inches in diameter. It is hardened and ground, and then chrome

plated to provide long life. This hollow rod is considerably stronger than a solid rod of the same diameter.

The spring retaining grooves do act as cooling fins and add approximately 30 percent radiating area to help maintain uniform fluid density.

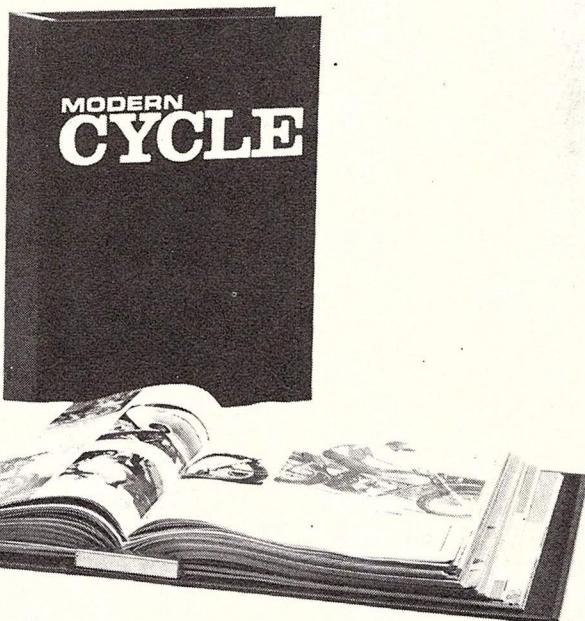
The external load bearing springs are of high-strength material which have been shot-peened to increase resistance to failure or sacking. Internally, bottom-out and top-out springs prevent metal-to-metal contact at either end of the operating range of the shocks. The mounting bolt grommets are of urethane and they give high-strength and long life.

The Arnaco 2ND Suspension unit is a very impressive piece of equipment. The shocks are made to fit a wide variety of machines, they are easily rebuildable and, most important, they work! The nationally advertised retail price of the Arnaco 2ND Suspension units is \$49.90 per pair. We feel that they are a bargain at this price since they do all the things claimed for them and, when the time comes, they can be rebuilt very economically.

By the time this appears in print the Arnaco suspension units will have begun appearing in quality motorcycle shops. We suggest you stop by and examine a pair. We think you'll agree that motorcycle suspension has taken a giant step forward. ●

BINDERS

Due to the many request's by our readers, we are now able to offer you this beautiful art leather binder with "MODERN CYCLE" in gold letters on the front and spine. Each magazine can be inserted or removed individually. It holds 12 issues and is just the thing to protect those priceless back issues.



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(SCOTT)

(Text continued from page 26)
feeling: walking around the pits without a bike to race."

Two friends, Don and Scott Autrey, finally came to Gary's rescue and let him ride their 350 Yamaha. After Scott Autrey did well in his Junior race, they changed the pistons and rings and put on a new set of tires.

"I thought I did pretty good, considering what we were up against. We figured I was in 12th when the bike finally blew on the 47th lap. I knew I wasn't going to win but I wanted to get in there to get the points."

Daytona '72 was the debut and downfall of the Superbikes. All kinds of troubles put the big runners out of action opening the way for Don Emde, also on a 350 Yamaha, to take it.

"A lot of that was due to the fact that it was, and is, the first road race of the year and it's one of the toughest. The only one I saw that was harder on the rider and machinery was Talladega and that was because of the weather."

Talladega was torturous. At Daytona nobody was really ready for what they were going to have to endure such as the tire wear on the big triples and the high speeds.

"This next one shouldn't be as hard on the machines. Plus, they should have most of the problems worked out."

Gary signed a full contract with Triumph in early November. He, Romero and Mann will be that firm's only team riders. And the two-time National winner is now even more confident at his dirt track chances.

"Ever since Harley-Davidson got their alloy machines sorted out, they were the rage of the circuit. I was just about to sign with Harley, but Triumph came along so I went with them. I know that Triumph has been putting in a great deal of work on their own bikes to make them more competitive and I've been told that the new machines are putting out about five more horsepower. I don't think it's a flash reading, either."

Gary Scott is about as confident a half-mile rider as can be found. Although only a rookie, he already knew he could beat everybody. Doing it only reinforced that belief.

"I've got a lot of racing years ahead of me, so I didn't really get upset when I missed the Championship. I know I'll get it; if not in 1973, then maybe in 1974. But, I know I'm going to get it. And, until I do, I can't say anything about what I want to do later in life."

"Right now it's winning . . . winning the National Championship."



The horde of scary-looking outlaws that gathered in front of the Fairgrounds did as much as anything to cause the city of Indio to discontinue the tour.

REPORT AND PHOTOS BY GEORGE HAYS

REQUIEM FOR THE INDIO TOUR

THE BADDIES
KILL ANOTHER
GREAT EVENT

Stunts by the Victor McLaglen Motor Corps were a traditional feature of the Indio Tour. The Corps was founded in the '30s by the famous actor.

Starting with a few hundred signs eight years ago, the Indio Tour quickly grew to an annual rally of over 4,000 riders. The 8th Indio Tour, held in October of '72, was one of the largest gatherings of road riders the nation has ever seen. Over 5,300 paid to enter the run at the Indio Fairgrounds, and at least an equal number of riders made it to Indio without signing in.

Until two years ago, the tour was an AMA sanctioned event, with an AMA card required to sign in. Outlaw riders refused to pay dues to any organization other than their own clubs, so they were rarely seen at Indio. The few who did show up cruised by for a quick look and kept on going, or skulked around the outer fringes of the run. Then the AMA raised their membership fee



from \$2 to \$7 per year. Most road riders refused to go along, feeling that the AMA is unresponsive to the needs of the road rider. The Indio Tour had to have several thousand entires to cover expenses, so to survive no AMA cards were required on the 7th and 8th annual tours.

With AMA cards unnecessary the outlaws began to swarm in. They caused no real trouble their first year, but their raucous behavior and frightening appearance led many of the righteous citizen type riders to mount their full-dress machines and leave in disgust.

On the eighth and last Indio Tour more outlaws appeared, and more "squares" stayed home, making the tour what was probably the largest assemblage of extended forks and

long hairs ever seen. You noticed the difference as soon as you got within 50 miles of Indio. Four out of five bikes on the road were choppers. The roadside was lined with choppers, their riders trying to wire their machines back together long enough to make it into Indio. The same old excitement was in the air when you arrived at the Fairgrounds, but this time the potentially explosive situation added a hint of fear. This time it was the outlaws who were in the majority, and it was the squares who took a quick look and kept going.

"I don't like it," said one rider as he entered the Fairgrounds. "There's the smell of death in the air."

Another arrived to put his rare 1917 8-valve Harley racer on display

in the line-up of rare bikes, but after one look at the crowd left it on his pickup and departed.

An Indio citizen, viewing the huge crowd of outlaws gathered in front of the Fairgrounds, commented, "It's scary enough just to pass half-a-dozen of those animals on the road, but good God, look. There are thousands of them!"

But the Pacific Coasters, the sponsoring club, were determined to carry on. "We haven't had any trouble with the chopper group up to this point," said President Chuck Myers. "They come to Indio to have a good time, and that's what the run is for. As long as they don't cause any trouble they're welcome."

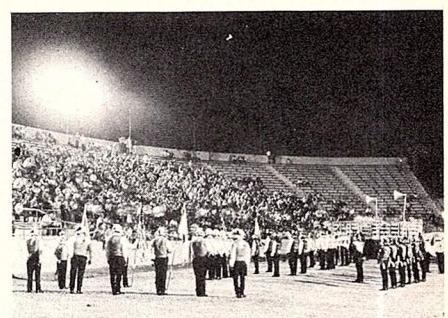
The traditional program started at 1:30 Saturday afternoon with the



The field meet included the clothespin contest, an old favorite.

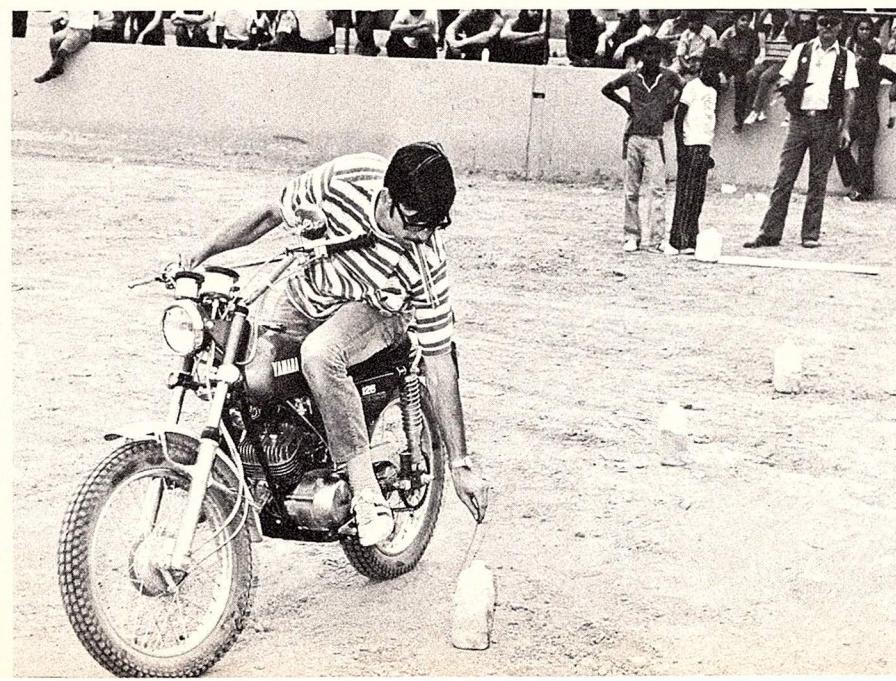
Even with 5,300 sign-ins, the Fairgrounds had plenty of room. It was a groovy place to hold a run.

Even from the seat of a trail bike it's hard to place the straws in the bottles.



Judging events Saturday night started with competition for the Best Dressed Club trophy.

Dave Grossman won the Oldest Bike trophy with his 1932 VL Harley. Dave turned down offers of \$1,500, \$2,000, and \$3,000 for the old gem at the run.



parade through town. But this time it was a parade of choppers rather than dressers. Back at the Fairgrounds the Victor McLaglen Motor Corps and the Ace of Clubs Drill Team presented their usual fantastic performances of thrilling stunts.

Then the crowd gathered in the stadium to watch the field meet contestants vie for trophies. The riders lined up and entered one side of the arena, then rode a path through every test of slow-speed riding skill imaginable, including ride the plank, bean bag toss, placing straws in bottles, golf balls on top of traffic cones, an obstacle course, kick the ball, spear the rings, and a series of sharp turns while riding over anchor chain, old tires, and the rungs of a ladder. If a rider got through all that with

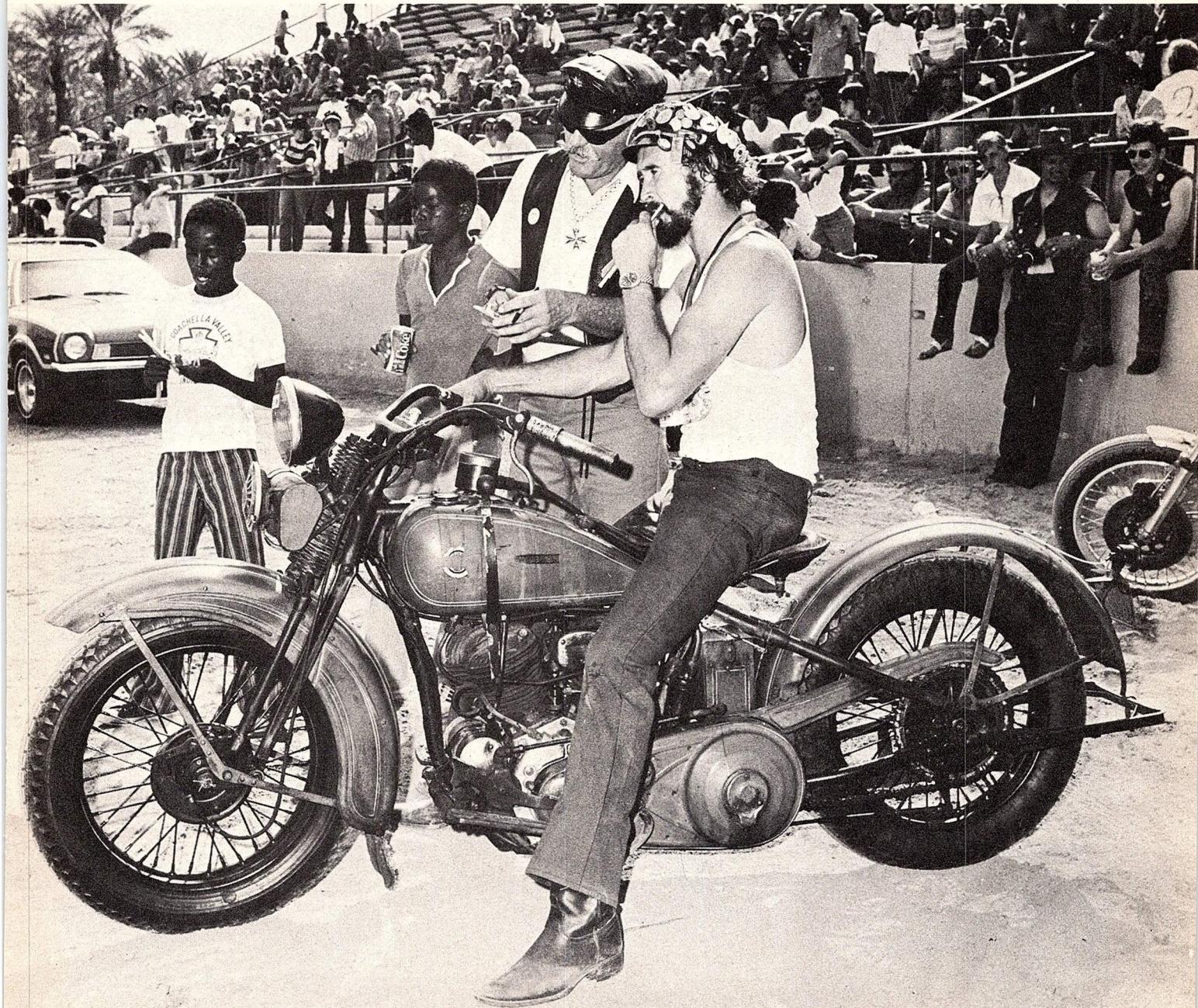
a high score, he proved he could really handle his machine.

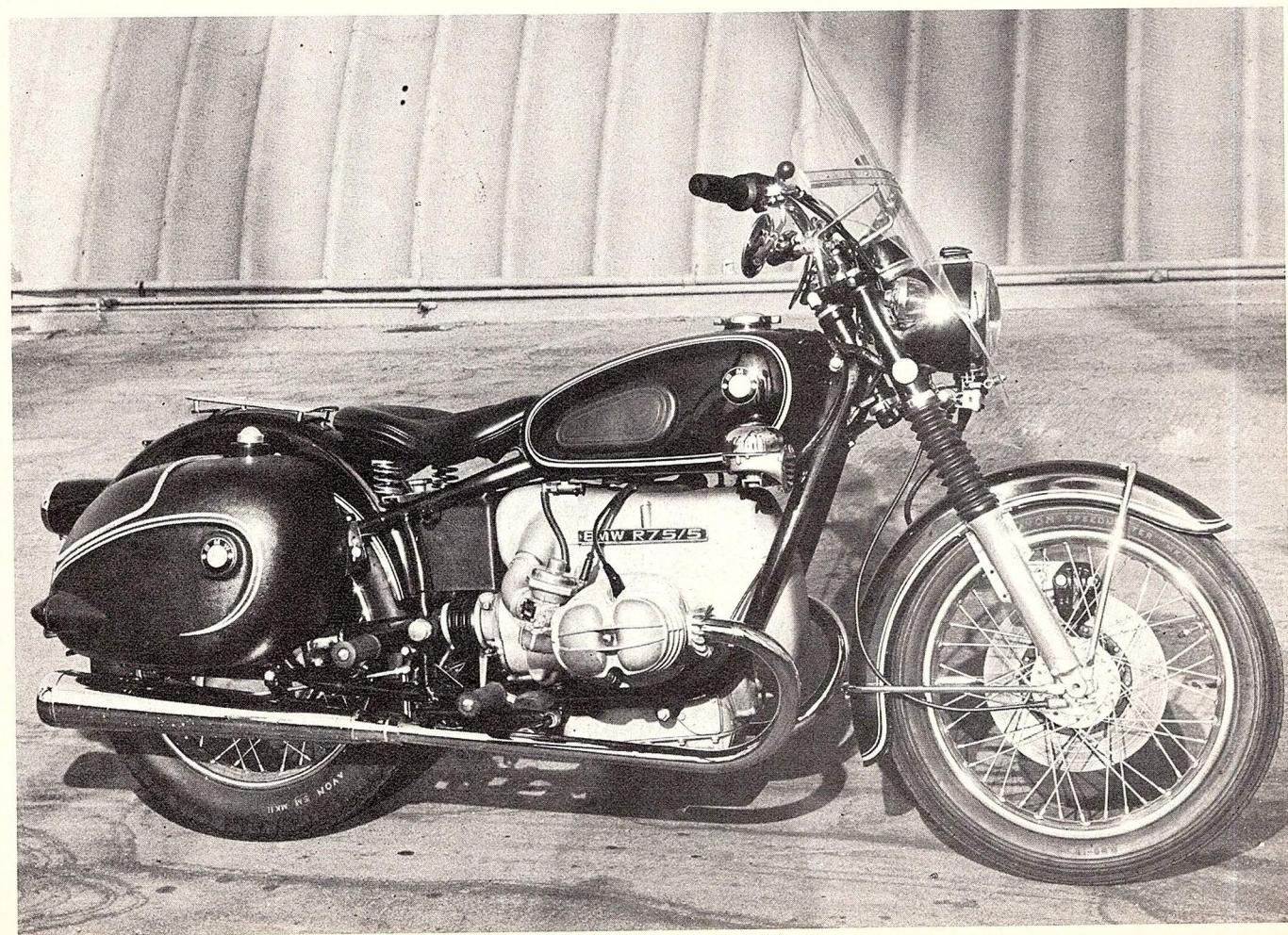
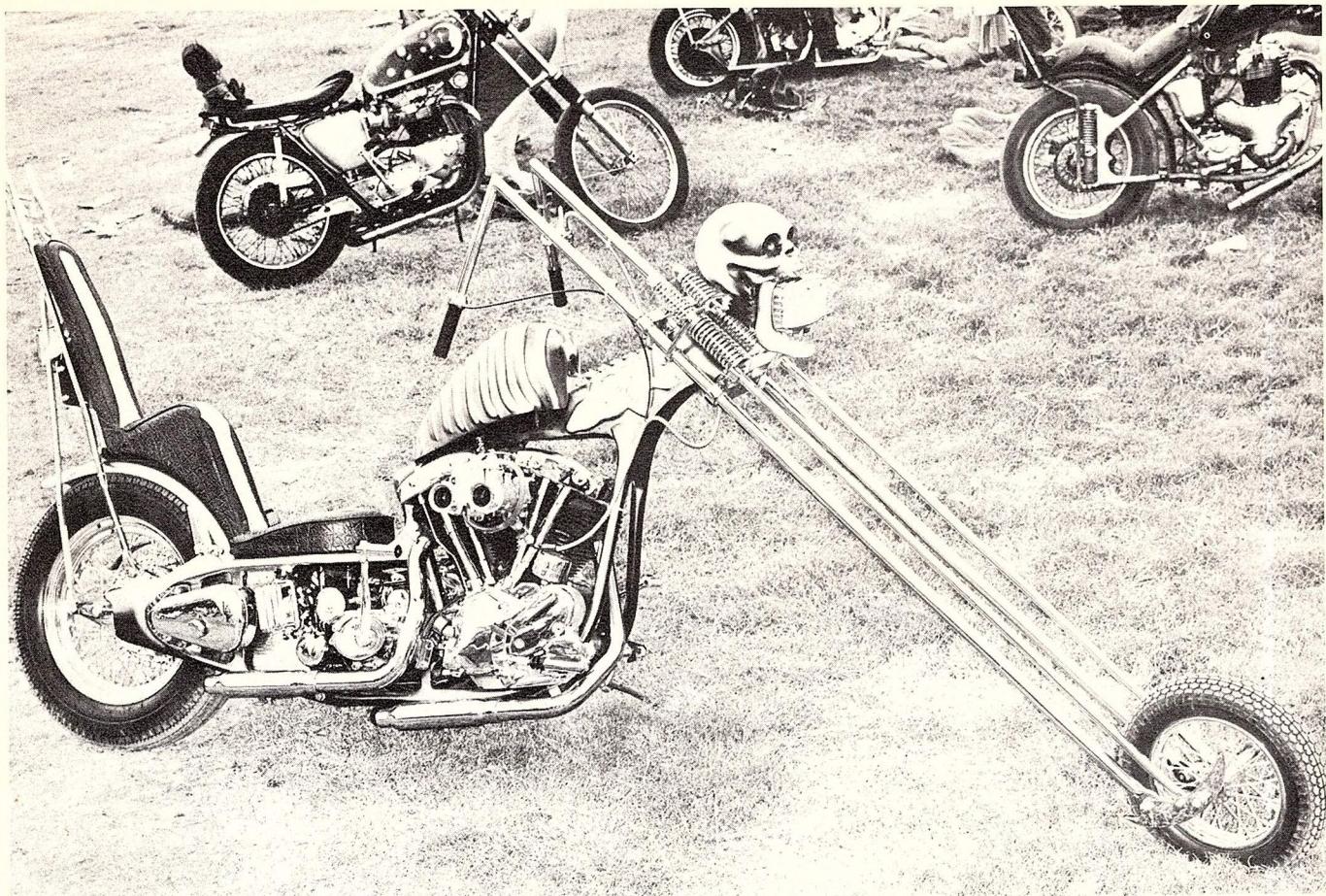
Meanwhile, on the outskirts of Indio, two outlaw gangs were having their own type of competition—a show down in front of a bar to prove who were the baddest badasses of all. Two were shot to death, two stabbed, and one was savagely beaten. After the battle one of the gangs was being escorted through Indio by the police when they spotted two members of the rival gang sitting on their choppers in a drive-in parking lot, and decided to even the score. The gang, numbering about 60, jumped off their choppers and charged, pulling off their chain belts as they ran. For several long minutes the mob surrounded the two helpless riders while arms

swung and chromed chains flashed in the sun. Then the gang remounted and rode on, leaving two bloody bodies and two choppers on the ground, one of the bikes set on fire.

Back at the Fairgrounds everything seemed under control but those who are alert to such things noted that pills and pot were going down along with the beer and booze.

After dinner the crowd gathered in the stadium for the "Best Dressed" contests, the beauty contest, and the trophy presentation. It was a problem to find judges for the contests. In years past this had been done by local law enforcement officers, but this year they were busy trying to keep things under control in town. The crowd in the grandstand behaved like a class of school kids





Even if you don't like choppers you gotta admit this one is kinda pretty.

Performing stunts on fast-moving motorcycles, two girls added beauty to the performance of Ace of Clubs Drill Team.

out of control, while Chuck Myers struggled to be heard on the P.A. Occasionally during the program a renegade on a chopper roared through the arena and was rewarded by cheers from the crowd.

"Indio next year?" Chuck commented. "I don't know—maybe." But no one seemed to hear or care.

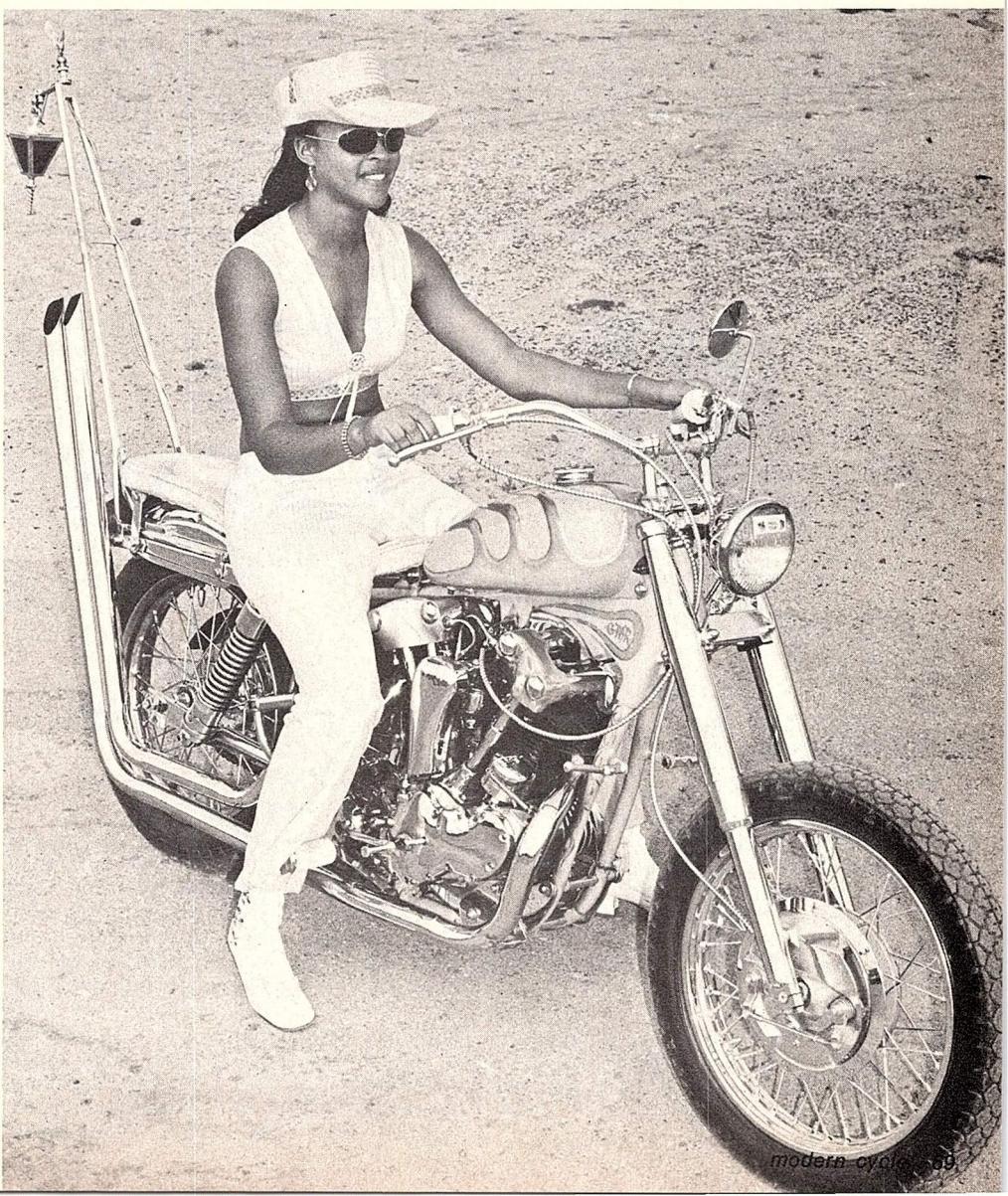
After the trophies were awarded the crowd moved into the auditorium for the dance. Later that evening someone rode his bike into the auditorium and across the dance floor while the crowd cheered him on. Chuck Myers managed to get him back outside, but it wasn't long before another chopper roared through the cheering crowd, across the dance floor, and center punched an elderly man. Latest word from the hospital is that the old timer will spend the rest of his life in a wheelchair.

At that point Myers told the crowd, "If there's an Indio Tour next year, I won't be here." Not long after that someone started punching the band leader, and Myers shut the dance down.

Thus died the Indio Tour, America's largest road rally. Many of the runs that still survive seem to be heading for the same fate. Apparently in today's society you can't have a large gathering of motorcyclists without it becoming infested with outlaws and turning into another Custer's Last Stand. The righteous citizen type riders will still have runs, but they will be small and secretive to avoid attracting undesirables. Road riding, for the squares, is becoming a subversive activity. ●

Indio was a fine place to combine girl watching and bike watching. The beautiful gal is Gloria Reynolds and the beautiful bike is a Harley engine de-stroked from 74 to 61 inches in a K Model frame. The trans and primary case are BSA. Check the cute taillight.

You could find any kind of bike you want to see at Indio. Gene Freeman combined the stable handling of the old BMW frame with the smooth power of the new engine. No major frame modifications were necessary. Front end is Honda. "It was a lot of work," says Gene, "but it was worth it."





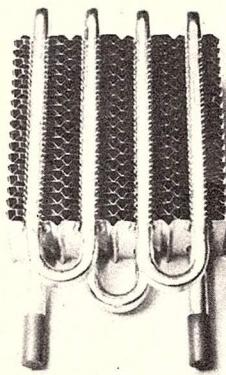
CARRY-ALL BAG

A tote along bag that is large enough to carry all your riding gear including helmet and full leathers. Sturdy canvas construction with tough double stitching at the stress points insures a long life product.

This Carry-All Bag is currently in use by many of the top professional riders and at their suggestion Flanders added

a silk screened line that invites the owner to mark his name with a felt pen.

Easy access is assured with the heavy-duty full length zipper. Flanders part number is RB-1 and the price is \$8.95 suggested retail. It is available at most motorcycle shops or write **Flanders Company**, Dept. MC, Box 2297d, Pasadena, California 91105.



CYCLE COOLER

Here's good news for 4-stroke motorcycle owners. This all-aluminum, corrosion-resistant Cycle Cooler improves performance and increases bearing life by keeping crankcase lubricants cool—even during hard riding in hot weather. Best of all, you can install it in about an hour without special tools. Order by fast mail order from **Suzuki Fun Center**, 515 N. Victory Blvd., Dept. MC, Burbank, California 91502. When ordering, specify model:

Model CC-101—Complete kit—Retail—\$54.95. Fits: Harley 74, Sportster, and Superglide; BSA 500cc, 650cc, and 750cc; Triumph 500cc, 650cc, and 750cc; Norton 750cc.

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NEW WISH BOOK

A new 180-page catalog featuring a complete line of motorcycle and rider accessories is available from Top Gear Accessories. The company supplies dealers throughout the United States with its own brand of merchandise, as well as Dunlop tires, Amal carburetors, Reynolds chains, Bell helmets and Lucas electrics. Requests for the catalog should be addressed to: **Top Gear Accessories, Inc.**, P.O. Box 6790, Dept. MC, Baltimore, Maryland 21204, or 2745 East Huntington Drive, Dept. MC, Duarte, Calif. 91010.

HOT SET-UP FOR BIKE 'N BOD



MEXICAN MOD

Dimex-Moto Imports has just released the "Super-Cool" Carabela racing jerseys for maximum riding comfort. They are inspired by the Mexican colors—red, white and green with padded elbows and silk-screen printed on both sides. Jerseys are available in sizes S, M, L, XL. Price is \$14.95 each.

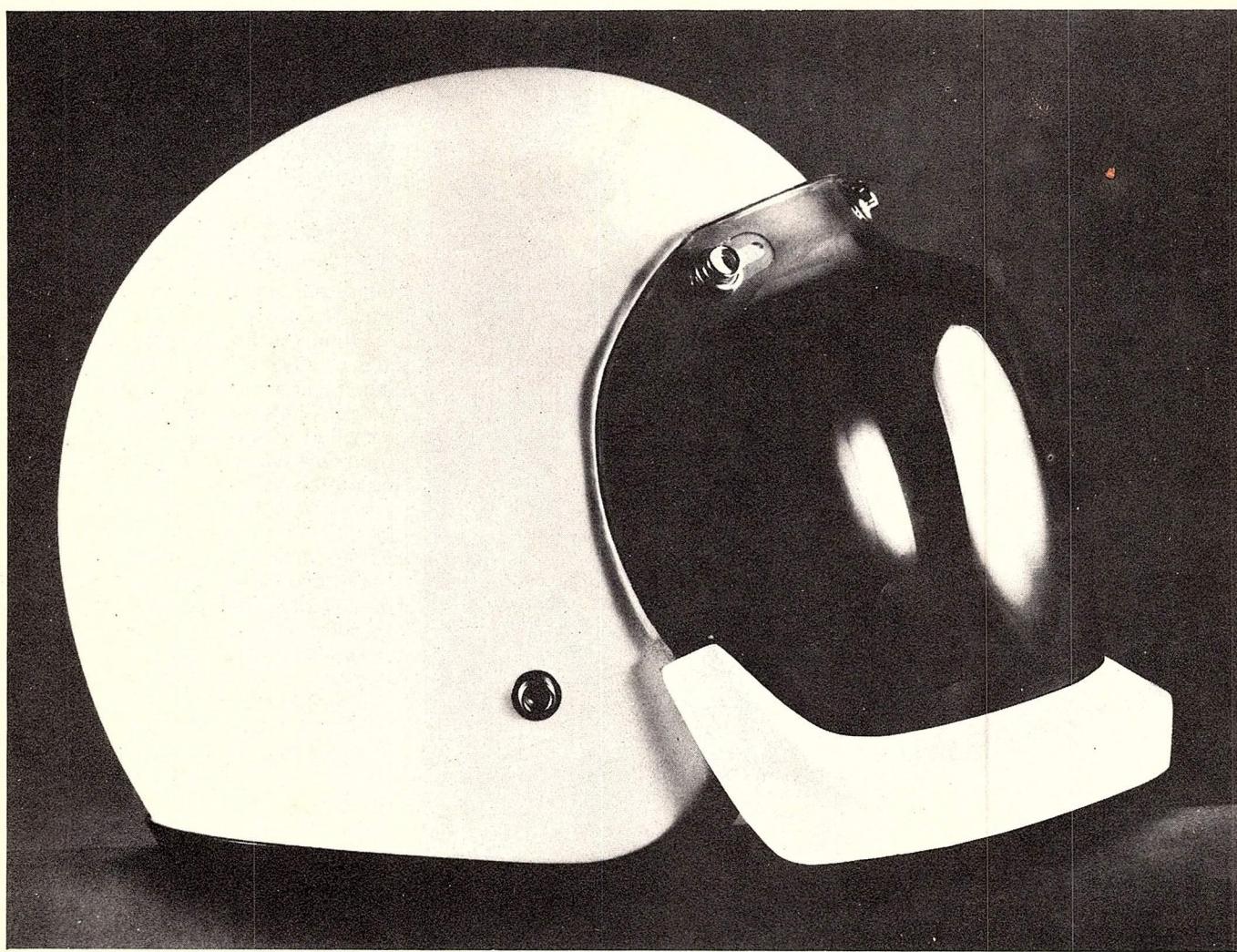
Make checks or money orders payable to: **Dimex-Moto Imports Co.**, 1731 So. Claudina St., Dept. MC, Anaheim, California 92805.

THE LATEST FROM VHT

Sperex Corporation (VHT), Los Angeles, California, has announced a new motorcycle chemical line in addition to their already race-proven automotive chemical line.

Dealers can now order a merchandiser which includes 24 fast moving products, attractive display carton, racing decals, and promotional aids. Each display contains 4 each of the following products: Chain Lube, Wrinkle Finish, Spark Plug Cleaner, Grease Away, Expansion Chamber Paint, and 1200° Flameproof Black Coating.

For free literature and prices, write to: **Sperex Corporation**, 16131 So. Maple Avenue, Dept. MC, Gardena, Calif. 90248.



AUDIO LINK UNVEILED

A solid-state transceiver that puts the motorcyclist in voice communications with his passenger or other cyclists was unveiled at the Motorcycle Accessory Trade Show in Long Beach, California.

The device, dubbed HAL (Head Audio Link) by its developers, Audio Link, Inc. of Cleveland, Ohio, features a voice actuated noise cancelling microphone that provides telephone quality reception ranging up to 500 feet.

The entire system is built into a light-weight, high-impact injection molded housing that snap fits along the bottom

of a face mask, which in turns snaps onto any standard motorcycle helmet.

The unit has been tested at speeds up to 70 miles per hour without significant interference from wind or engine noise.

Reception is as clear as or better than telephone quality, with the voice characteristics of the individual sender clearly identifiable.

The system is powered by a single standard portable radio battery replaceable with the same ease as a flashlight battery. The only external parts are a small antenna and an ear plug.

Future models will snap to helmets

directly, thus precluding the need of a face mask.

HAL operates on a special low frequency FM band, and is deliberately range-limited to 500 feet to insure interference-free reception. Different frequencies and ranges can be built into the system for special uses—by police departments, for example, on special order from Audio Link. No license is required to use the unit.

For further information contact: **Command, Inc.**, One Erieview Plaza, Dept. MC, Cleveland, Ohio 44114.

(Text continued on page 78)

world mini...

(Text continued from page 59)



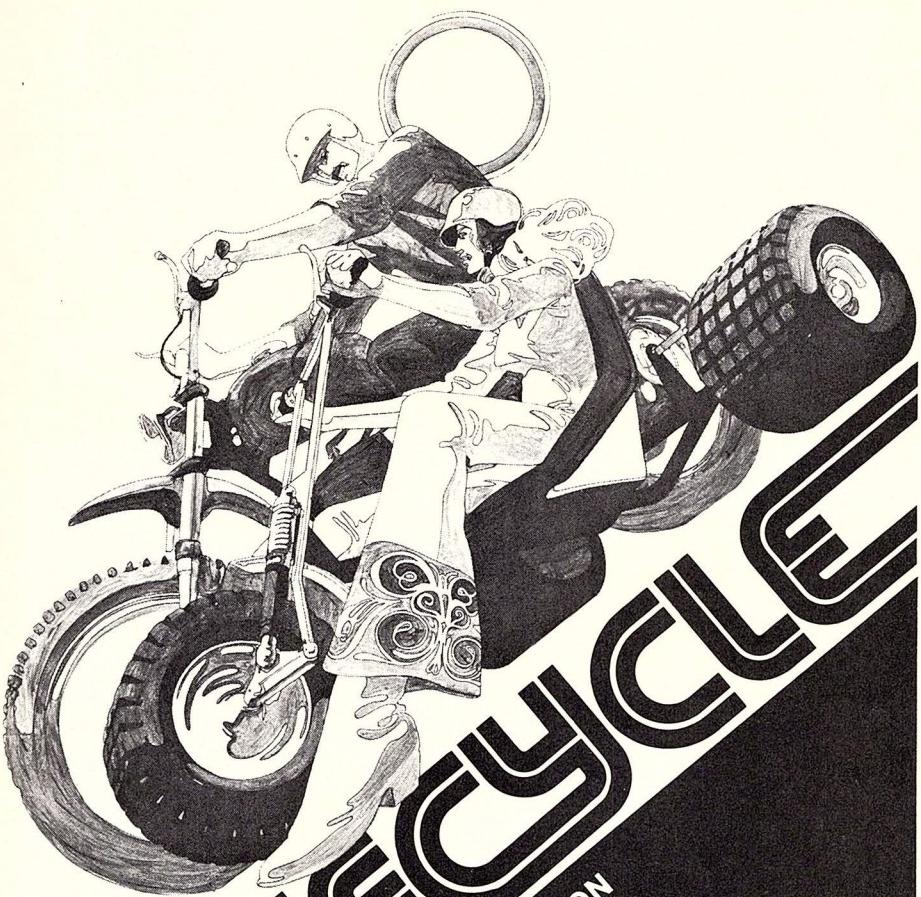
important classes the competition was very close.

When the final checkered flag fell late Sunday afternoon some interesting results had been posted. The World Champ in both the 0 to 75cc Modified class and the 0 to 75cc Stock class was young Brian Meyerscough of Calimesa, California. In the big 76 to 120cc Modified class Marty McCoy of Pinellas Park, Florida emerged as World Champ.

Certainly one of the saddest sights of the day was young Mike Brown standing beside the track with damp eyes as he watched the checkered flag fall to end a race he had led commandingly until his chain parted on the last lap. Mike had ridden with style and intelligence, only to have the big win snatched from his grasp by that faulty chain; that's racing, but it certainly is a hard way to lose.

The long weekend came to a close with a drawing and presentation ceremony held on a floodlit stage in the press compound. Hendrickson had taken pains to accumulate tons of loot to ensure that as many kids as possible would go home with something for their efforts. Miss Molly Blue was on hand to help hand out the trophies. (I fear her obvious charms were lost on the majority of the young riders!)

The World Mini Grand Prix came to a close with the same flourish with which it had opened. It was quite a weekend of racing and, best of all, a lot of kids had had a pleasant time. That's really what it's all about!



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(Text continued from page 8)

heels of this statement follows the old "three power strokes per rotation of the crankshaft." A clear example of a misunderstanding of the engine.

There are three power strokes per rotation of the rotor. But, each rotation of the rotor requires three rotations of the crankshaft resulting in one power stroke per crankshaft revolution. A few minutes toying with the model pictured in the article should clearly show this to be true. In this instance a single rotor Wankel is the equivalent of a two-cylinder four-cycle piston engine. There is, however, a difference. Due to the requirement of the crankshaft moving through three revolutions to bring a chamber back to the power cycle, the power stroke requires 270 degrees rather than 180 degrees. A single chamber rotary applies torque to the crankshaft 75 percent of the time against 50 percent for the two-cylinder four-stroke.

As the article was captioned as done right, sufficient research should have been undertaken to ensure its accuracy. It is difficult to understand how the mistake was committed, considering the model at hand demonstrating the mechanics of the engine.

Charles W. Good

You're absolutely right, Charles. I caught the mistake while reading the issue fresh off the printing press. In my tight schedule to produce the magazine I had transposed the words "rotor" and "crank" (probably in my mind) and failed to pick it up in the proofs. I knew letters like yours would come along; yours being the best of the lot, you explained the situation better than I could.—Ed.

Dear Sir:

You had a solid article on some '73 machines of various manufacturers. I enjoyed reading this article till I came to Suzuki for '73.

In your little write-up of the Suzuki 185 Adventurer you mentioned that it had a double leading shoe drum brake, and behind this sentence you put, "A disc would be silly anyway."

As you know, when a car and cycle meet together the bike is always the loser. The very advanced and sophisticated machinery of today is getting faster and faster, bigger and bigger. I can see where they would need a disc brake (500cc and over) to haul them to a stop. But don't you think that a disc on most small bikes would improve the stopping ability and increase the safety for cycles and their riders for the cars who like to play pull-out-in-front-

of-the-motorcycle?

The cost would be a little more but isn't that worth saving your life some day maybe?

I'd like to thank you for your time and you have a great magazine. Oh, one more thing. The state of Michigan has passed the state of California in the number of motorcycles.

Keep up the good work!

George Howard
Grand Rapids, Mich.

You'll note, George, that even Honda's 90cc domestic street single has a disc up front; the industry is definitely heading in that direction. However, a fine double leading shoe brake as found on the Suzuki is very difficult to improve upon, they are more sensitive than discs in application. I am sure Michigan has more registered motorcycles than California, but what about the unregistered machines?—Ed.

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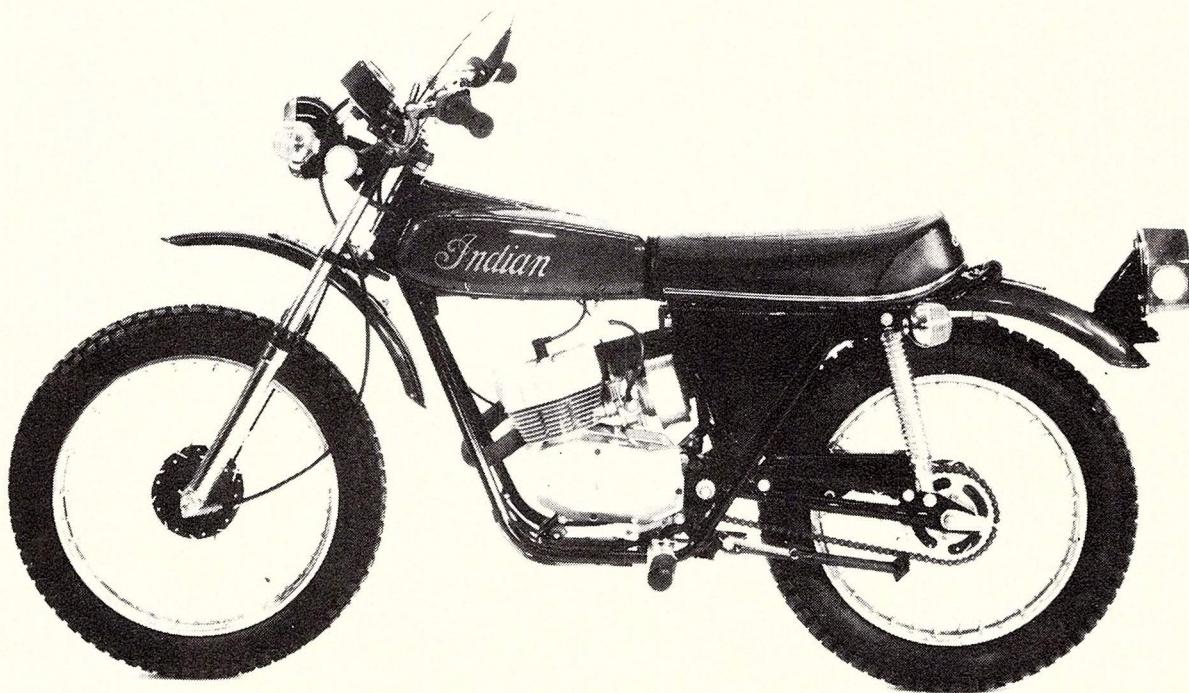
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Yankee

(Text continued from page 32)

bundle, as do many of the bits and pieces on the "Z."

The rear suspension units—also Ceriani and also specially built—are not really up to their task. While the springs permit neither topping or bottoming of the rear end the shock units do little to impede bounce or rebound. All of the careful sorting out that has been applied to the chassis is almost lost by the bad shocks. In such simple maneuvers as pressing hard across whoop-de-dos the rear end reacts harshly, greatly reducing control and traction. It's frightening to contemplate what might happen if the chassis were not as good as it is.

The Yankee's brakes are a curious mix of disc and drum — curious in that the disc is on the rear and the drum is on the front. We applaud the choice of the disc, although it occasionally loses feel for no apparent reason, but the front drum rates low marks; it's a single leading shoe design, scarcely up to the requirements of a much lighter motorcycle (it's borrowed from the Ossa singles), and a stream dunking renders it instantly useless, a condition that persists for some time afterward. We would like to see the "Z" with discs on both ends. Lacking that we feel the disc should be mounted up front where maximum braking potential occurs. Compression braking on the big Yankee is excellent and a compression release is fitted as standard, and if all that in combination with a front disc isn't sufficient stopping power...

The "Z" is long on sit-down comfort with an excellent saddle that is among the best we've ridden. Control placement is generally good but the gear selector is tucked almost too carefully out of harm's way and is difficult to locate in a hurry. The brake pedal could stand some work, needing a few teeth with which to grip wet or muddy boot soles. The design and positioning of the foot pegs are excellent.

The Yankee's lighting is good, much better in fact than many of the enduro models on today's market. Ignition and lights are both controlled by a single rocker switch mounted behind the headlamp. The speedometer, which proudly sports the Yankee logo on its face, must be a mistake. It seemed to be reasonably accurate—not overly optimistic—but whatever would you do with it if you were to ride an enduro. You see, it does not have a tenth mile pick on the odometer.

All in all the Yankee "Z" is a rather exceptional motorcycle; it's exceptionally well thought out, exceptionally well executed, and it is exceptionally

heavy and unfortunately exceptionally late. Had it been available just a couple of years ago, when the interest in it ran high and some of the present offerings weren't around it's reasonable to assume that the "Z" would have sold like California beach property. But the Yankee is in a very competitive market area, and unfortunately for its builders, one that has seen great strides in an advancing state of the art in just the last several years—years during which the Yankee has been in development.

The Yankee folk deserve full marks for the care they've put into their product, at a time when it must have been tempting to drop it on the market and

hope that inevitable teething problems might not show up. And they certainly deserve our attention for the future. Their big single cylinder engine, which is presently undergoing development testing in that splendid chassis, is no secret, and reports thus far rate it as a potentially excellent scratcher. Shortly, we're told to expect the introduction of a street version of the "Z" twin with more horsepower and all the civilizing touches required of a roadster. Frankly we find this an exciting prospect; good dirt bike chassis invariably make excellent roadsters while the inverse is rarely if ever true. What an ear-holer that one's going to be! ●

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EUROPEAN SCENE

(Text continued from page 6)

the CCM factory, bought all the BSA competition shop equipment when the factory withdrew from motocross support. He has developed the 500 MX engine and tied it up in a new Reynolds 531 tubing frame. Already some of these Clewstroka moto 500's are in the U.S. with orders pouring in faster than production can cope with. Officially BSA are not involved but, on the side, are maintaining a

strong interest. Come the day when their financial fortunes are on the mend and motocross and other competition support can be given factory backing. So, in the meantime, Clews Competition Machines are keeping the lamp alight.

Official works Triumphs will be used for the 1973 U.S.-based International Six Days Trial British entry for its Trophy Team. The Triumph 500 Adventurer is likely to be the base for the ISDT models which uses the BSA motocross 500 MX frame, forks and wheels with their conical alloy hubs. The only Triumph used in the British team in 1972 was the 504cc job on which Arthur Browning had a Gold

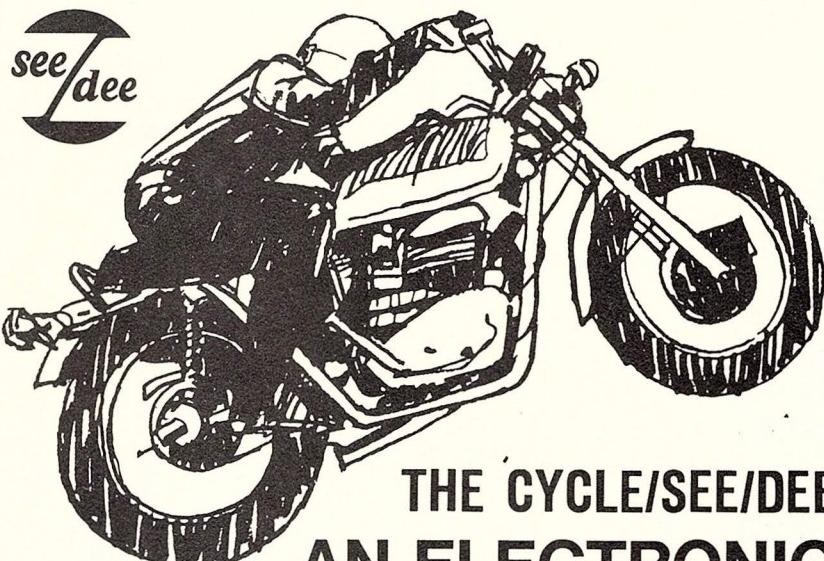
in his pocket up to the last 200 yards to the finish on the final day when an almighty crash put him in the hospital; until then he led his class on bonus points. Browning, now almost recovered from his prang, has been selected for the 1973 team.

The Italian Benelli has now entered the exotic bike class matching the big sister factory's 850cc Moto Guzzi with a new 750cc six-cylinder. So with M.V. and Ducati in this same market the Italians are in the big money, big bike class with a vengeance. The Moto Guzzi is the 140 mph, 850cc Le Mans.

Former works Triumph 3 rider John Cooper, who won the big money Ontario 1971 race, has now signed up with Norton under the John Player Norton team (the Player part indicating the big tobacco combines sponsorship).

In the first winter TV Motocross Series Vic Eastwood won the main trophy on his big AJS; but the win was tempered by the allegation and admitted by Eastwood that he had jumped the starting "gate" thus gaining an advantage which his opponents could not overcome. And so to the second of the series. The knowing ones said that Eastwood's first win would not be repeated with such as Badger Goss (Maico), British Champion Bryan Wade (back after his 2 weeks suspension for noise infringement) and John Banks (CZ). Wade had the big 450 U.S. style motor. Then came the shock from the AJS factory—an all new 500cc with new crankcases, left-hand gear-change, rubber engine mounting a la Norton Commando, and a huge silencer box. Both main races saw Eastwood and the big AJS take the lead from the start, and the opposition hardly saw which way he went. The critics were duly confounded when Eastwood took both World of Sport and Castrol Trophies. This year's TV wins were in fact a repeat of the previous year's TV meetings, both being won by the 410cc AJS, but the rider being in both instances freelance Arthur Browning who had left the Greeves factory team. Naturally everyone is interested in the 500 AJS which Eastwood forecast as THE machine for 1973, but it is not yet scheduled for production. One thing is certain, that factory will not be lacking for development finance now that its sister Norton-Villiers plant is coining the "gold" with ever-increasing sales of the Norton Commando in its varying specs.

The Sprite factory which imported its motocross bikes into the U.S. under the now defunct American Eagle banner has now reported a deal with the Japanese giant Mitsu-



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bishi industrial firm. Sprite are to supply them with a total of 14,000 250cc and 405cc motocross models over the next 5 years for distribution in the U.S. and West Indies. First deliveries to the U.S. were for January 1973 and the contract allows the buyers to use own name promotion.

Although the controlling FIM has introduced a World 125cc Championship motocross series, this is being totally ignored in England which has no plans to stage a round and no manufacturer interest. Although several makes of good moto machinery are available (Maico, Husqvarna, Rickman and Bultaco) in this capacity, no interest is evident from riders, importers or makers of the bikes. In fact, more countries are supporting this new 125 series than are the 250 and 500 Championships to such an extent that the fixtures have had to be split into Group A and Group B with the Fina's on September 23rd in Yugoslavia. Unusual entries are from Portugal, Denmark, Finland and San Marino. The U.S. 125cc motocross date is listed as August 5th with its 500cc date as June 24th. The U.S. does not have an event for 250cc in 1973.

Greeves Number One factory rider has switched once again to Husqvarna to strengthen the home-based team now that Andy Robertson is contesting the Internationals. Dave Nicoll, formerly BSA works rider, replaces Clayton in the Greeves team.

With memories of the much heralded Weslake world-beater of four years ago (and still a non-runner in world class) we now have another such in the four-cylinder, all-British K.R.M. Delivery is promised later this year. The double overhead camshaft 350cc is said to produce 65 bhp at 13,000 rpm. Chief designer of the new "plot" is Jack Williams, formerly with the old A.M.C. (Matchless/AJS) firm, and he has been working on the new design for over a year.

A new Belgium motocross bike is on offer. The power plant is supplied by the British Sprite factory which, of course, manufacturers complete motocross and trials machinery for home and the U.S. markets.

Yamaha, which has its European headquarters in Amsterdam, has signed up no less than eight Dutch riders for its 1973 motocross team. Strangely Yamaha has made no entry into the British market and no rider from the U.K. has yet raced the bike.

Montesa has brought out its new updated 250cc Cappra V.R. The new version is a replica of the machine used in 1972 by Finland's Vehkonen who finished fourth in the World Series of motorcycling.

Popular in the U.S. and now being introduced into the U.K. market is the 250 Bultaco Alpina which is aimed at the fun bike market as distinct to the out-and-out trials men. Another innovation from the States is the anti-theft Cycle-Gard device and this reverse flow of competition goodies is on the increase. This shows that U.S. manufacturers have really got down to selling abroad.

The Swedish Monark factory is preparing a batch of 125cc International Six Days bikes, and entrants for the 1973 U.S. organized ISDT are guaranteed pre-trial delivery. Later, a 175cc version will be offered. •

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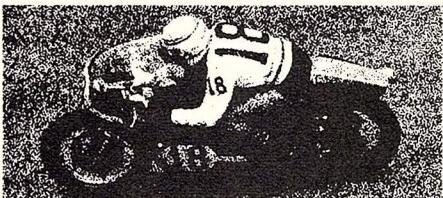
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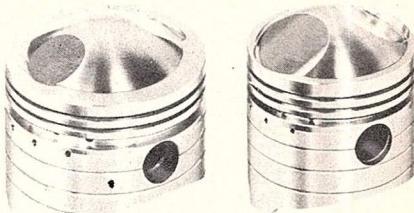
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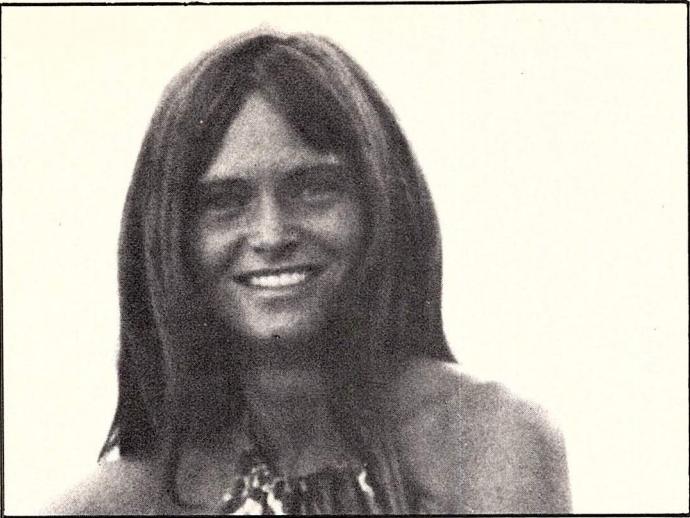
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MISS M.C.



Not a bad decoration for a Honda 500/Four wouldn't you say? The decoration, er, attraction (distraction?) is pretty Judy Highfill. Judy hails from Willcox, Arizona and is an avid motorcycle enthusiast. If you're hung on 500/Four's, this one belongs to Joe Patton. The winning photograph in this month's Miss Modern Cycle contest was taken by Jim Mayfield also of Willcox. For Jim's efforts he shall receive a free one-year subscription to **Modern Cycle** Magazine and a check for \$5.00.

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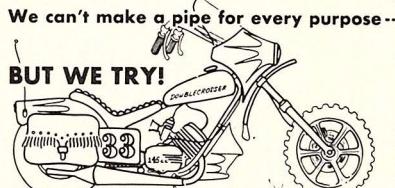
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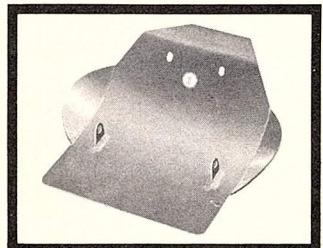
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ding your Honda is the lack of turning on the petcock for fuel. I've goofed several times myself in the same area while astride my Bultaco Pursang. I finally got out my Dymo label maker and made myself a stickie for the top of my gas tank. It says, "Turn on the gas, dummy!" Since I don't like being called a dummy, it worked.

As for your request concerning the Powder Puff Association here in California, I must first warn you that this organization is strictly racing-minded. The Powder Puff Association members usually race in scrambles events and they even sponsor two events themselves each year. Diane Connolly did mention that you were more than welcome to write for information. Their address is: Powder Puff Association, c/o Diane Connolly, president, 206 Via Pasqual, Redondo Beach, California 90277. We also have organizations for motocross and cross country desert type events here in California. If you wish their addresses just drop me a line.

Dear Jeanne:

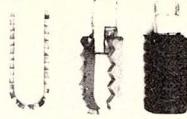
I'm interested in the boots Kasey Rogers was wearing in the August, 1972 issue of your magazine. Apparently some manufacturer has finally come through for us girls. I've been trying for over a year to locate that style of riding boot in a women's size 7B, but all that's available here is the men's boots in D and E widths. Any information you could give me will be greatly appreciated.

Louise King
Nashville, Tenn.

I really hate to disappoint you, Louise, but the boots that Kasey wears are the same old D and E width boots that the men wear. The sizes now come down to 4 $\frac{1}{2}$, but the width remains the same, too wide for the feminine set. I've been doing a lot of research lately in the Powder Puff apparel market. Within the next few months I'll be compiling this information into an article with true evaluations. I'll have photos, prices and addresses for boots, boot socks, kidney belts, gloves, leathers (both on- and off-road styles) barbour jackets and rain wear. Keep the faith, I am. I'm talking a blue-streak to some of these manufacturers.

I'll keep reporting on the Powder Puff racers and riders just as long as I see it or hear about it. I naturally can't be everywhere in this country at the same time so I need your help. Keep me informed on your events by sending your letters and photos to, "Powder Puff Power," c/o Modern Cycle Magazine. KEEP ON PUFFIN'!

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Here's your chance to win a five-dollar bill plus a year's subscription to **Modern Cycle** simply by sending in a good action photo involving any two-wheeled motor vehicle. For each photo we use, we will pay you \$5.00 and a one-year subscription. Photos should be clear glossy black and white prints at least 4" x 5" in size. On a separate sheet of paper give us as much information as you can concerning the photo. Send your entries to: Action Photo Contest, **Modern Cycle Magazine**, 7950 Deering Avenue, Canoga Park, California 91304.

All photos that are used in the magazine become the property of **Modern Cycle** and cannot be returned. Contributors who wish unused photos to be returned must include a stamped, addressed envelope with the entry.

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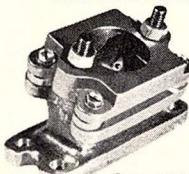
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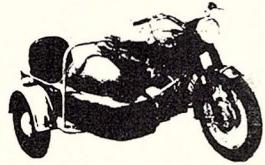
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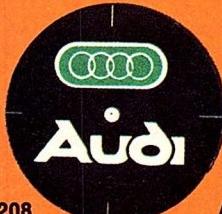
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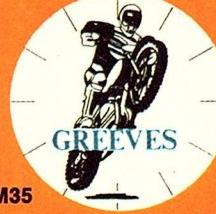
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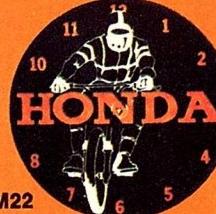
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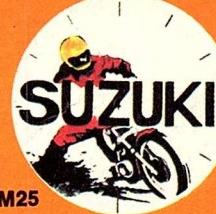
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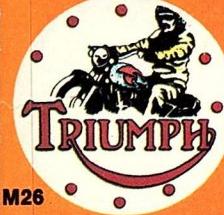
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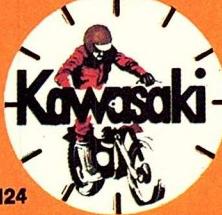
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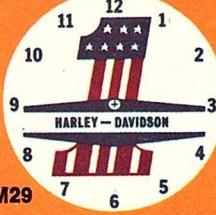
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